UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Note to Reader

Background: As part of its effort to involve the public in the implementation of the Food Quality Protection Act of 1996 (FQPA), which is designed to ensure that the United States continues to have the safest and most abundant food supply. EPA is undertaking an effort to open public dockets on the organophosphate pesticides. These dockets will make available to all interested parties documents that were developed as part of the U.S. Environmental Protection Agency's process for making reregistration eligibility decisions and tolerance reassessments consistent with FQPA. The dockets include preliminary health assessments and, where available, ecological risk assessments conducted by EPA, rebuttals or corrections to the risk assessments submitted by chemical registrants, and the Agency's response to the registrants' submissions.

The analyses contained in this docket are preliminary in nature and represent the information available to EPA at the time they were prepared. Additional information may have been submitted to EPA which has not yet been incorporated into these analyses, and registrants or others may be developing relevant information. It's common and appropriate that new information and analyses will be used to revise and refine the evaluations contained in these dockets to make them more comprehensive and realistic. The Agency cautions against premature conclusions based on these preliminary assessments and against any use of information contained in these documents out of their full context. Throughout this process, If unacceptable risks are identified, EPA will act to reduce or eliminate the risks.

There is a 60 day comment period in which the public and all interested parties are invited to submit comments on the information in this docket. Comments should directly relate to this organophosphate and to the information and issues available in the information docket. Once the comment period closes, EPA will review all comments and revise the risk assessments, as necessary.

These preliminary risk assessments represent an early stage in the process by which EPA is evaluating the regulatory requirements applicable to existing pesticides. Through this opportunity for notice and comment, the Agency hopes to advance the openness and scientific soundness underpinning its decisions. This process is designed to assure that America continues to enjoy the safest and most abundant food supply. Through implementation of EPA's tolerance reassessment program under the Food Quality Protection Act, the food supply will become even safer. Leading health experts recommend that all people eat a wide variety of foods, including at least five servings of fruits and vegetables a day.

Note: This sheet is provided to help the reader understand how refined and developed the pesticide file is as of the date prepared, what if any changes have occurred recently, and what new information, if any, is expected to be included in the analysis before decisions are made. **It is not meant to be a summary of all current information regarding the chemical.** Rather, the sheet provides some context to better understand the substantive material in the docket (RED chapters, registrant rebuttals, Agency responses to rebuttals, etc.) for this pesticide.

Further, in some cases, differences may be noted between the RED chapters and the Agency's comprehensive reports on the hazard identification information and safety factors for all organophosphates. In these cases, information in the comprehensive reports is the most current and will, barring the submission of more data that the Agency finds useful, be used in the risk assessments.

Jack E. Housenger, Acting Director
Special Review and Reregistration Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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AND TOXIC SUBSTANCES

October 14, 1999

MEMORANDUM

SUBJECT: **Chlorpyrifos.** Revised Acute Dietary Risk Assessment for Chlorpyrifos; Chemical No. 59101; MRID 466596; DP Barcode D260164.

FROM: David Soderberg, Chemist
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THROUGH: Steve Knizner, Branch Senior Scientist
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TO: Mark Hartman, Chemical Review Manager
Reregistration Branch 2
Special Review and Reregistration Branch (7508C)

Background/Action Requested

In support of reregistration of chlorpyrifos, perform acute dietary exposure assessments for chlorpyrifos using the most extensive refinements possible. This should include refinement techniques recently developed (i.e, "decomposition" of monitoring data). Use monitoring data from the USDA Pesticide Data Program (PDP), the Food and Drug Administration (FDA) Surveillance Monitoring Program and the Dow AgroSciences (Dow) National Food Survey (NFS). Where available, the PDP data are to be used in preference to the FDA data. Conduct a detailed analysis of individual commodity food forms in order to accommodate emerging policy on decomposition and treatment of blended and non-blended food forms. Where applicable, incorporate available processing factors in the acute dietary risk assessment.

Since monitoring data usually are derived from samples that are composites of multiple units of produce, such samples must be "decomposited" for the purpose of estimating single serving acute exposure. Because the current decompositing procedure may cause some projected residue

values to exceed tolerances, the results are truncated at tolerance level.

Acute dietary exposure assessments at this high level of refinement are described as Tier 3 and Tier 4 assessments. The distinguishing factor between a Tier 3 and Tier 4 assessment is the inclusion of market basket survey data. For purposes of this risk assessment, the Agency exposure assessment included some market basket data from the NFS (only for beef and pork). Another exposure assessment, which included all available NFS market basket data (total of 9 commodities), was also conducted as part of risk characterization. However, for reasons discussed below, there is less confidence in this exposure estimate.

Dow recently (1/13/99) conducted an acute dietary risk assessment (MRID #44403301) for chlorpyrifos using data from their National Food Survey (for nine commodities, all highly consumed by children) and field trial data for all remaining commodities. Because of the extensive reliance on field trial data, this assessment was much less refined than that performed by the Agency. No monitoring program data were included in Dow's assessment. Samples analyzed in the NFS include fresh apple, applesauce, apple juice, orange juice, peanut butter, whole milk, ground beef, pork sausage, and tomatoes.

Executive Summary

HED has conducted a highly refined probabilistic acute dietary exposure estimates which incorporated PDP and FDA monitoring data to the greatest extent possible and NFS data for 2 commodities (beef and pork) because those are the best data available for meat. Field trial data were used for a total of six commodities (field corn, soybeans, cottonseed, beans, sunflowers, and sugarcane).

Because of the limited and dated NFS data (relative to PDP and FDA monitoring data), the Agency believes that its exposure assessment which incorporated PDP and FDA monitoring data to the greatest extent possible and uses NFS data only for beef and pork represents the most reliable acute dietary exposure estimate.

For the US population and all subgroups the refined acute exposure estimates at the 99.9th percentile were less than 100% of the aPAD, ranging from 38% of the aPAD for females (13+ years old, nursing) to 91% of the aPAD for children 1-6 years old. Table 1 summarizes acute dietary risk estimates for the US Population and most highly exposed sub-populations. All values presented are for exposure estimates at the 99.9th percentile.

Table 1. Exposure and risk estimates for acute dietary exposures at the 99.9th percentile

Population Subgroup	Agency Estimate[a]	
	Exposure (mg/kg/day)	% aPAD[b]
US Population	0.000667	39
Nursing Infants (<1 yr old)	0.001283	75
Non-nursing Infants (<1 yr old)	0.001275	75
Children 1-6 years old	0.001541	91
Children 7-12 years old	0.001056	62
Females (13+ years old, nursing)	0.000646	38

[a] Exposure assessment included PDP and FDA monitoring data and NFS data for beef and pork only.
[b]The acute population adjusted dose (aPAD) is 0.0017 mg/kg/day for all sub-populations.

Discussion of NFS Data

As noted above, the NFS data supplied by Dow are now somewhat dated as compared to PDP and FDA data (NFS samples were only collected in 1993) and are limited (200 samples for most commodities, 54 samples for tomatoes). For the commodities included in the NFS, more recent and extensive data are available from the PDP and FDA monitoring programs. NFS and PDP or FDA data for apple juice, orange juice, peanut butter and milk are quantitatively and qualitatively similar. However, for apples and tomatoes the NFS and PDP monitoring data differ.

The NFS analyzed 200 apple samples in 1993, but PDP collected 1908 samples from 1994-1997 and FDA collected 1342 samples from 1992-1997. The NFS and PDP data for apples have a similar distribution of residue values, but the highest reported detectable residue in the NFS was 0.05 ppm, whereas for PDP it was 0.4 ppm. In general, PDP reported more detectable residues at higher concentrations than the NFS (i.e., more data at the high end or "tail" of the residue distribution). The ability to better define the tail of the distribution may be a function of the greater number of samples collected by PDP. Additionally, use of PDP data for samples collected over several years provides a residue profile representing potential differences in residue levels resulting from differing use patterns of chlorpyrifos (because of differing pest pressures, climatic conditions, and other factors which may result in more or less use of chlorpyrifos on a local basis).

FDA Total Diet Study (TDS) data are also available for chlorpyrifos, and in the case of apples these data also support use of the PDP data for risk assessment purposes. Measurable residues of chlorpyrifos (> 0.001 ppm) were found in apples for 14 of the 18 TDS surveys conducted from 1991 to 1997. Residues ranged from less than 0.001 ppm to 0.103 ppm, with a mean value of 0.012 ppm. Samples analyzed in the TDS are purchased at grocery stores and prepared according

to standard consumer practices prior to analysis (in the case of apples this means washing).

In the case of tomatoes, during the years 1996 and 1997 PDP analyzed a total of 881 samples for chlorpyrifos with 109 positive findings (12%), up to 0.31 ppm. The PDP monitoring program represents a random nation wide sampling program. In the NFS survey, 54 tomato samples were collected only in Florida. There were 17 positive findings (31%) up to 0.0565 ppm. As was the case for apples, the highest reported detectable residue in the PDP data (0.31 ppm) was greater than that observed in the NFS (0.0565 ppm).

Dietary risk estimates at the 99.9th percentile exposure using all of the available NFS data in addition to PDP and FDA monitoring data are less than 100% of the aPAD, ranging from 14% of the aPAD for females 13-19 years old to 68% of the aPAD for nursing infants. However, for reasons discussed above, the Agency has less confidence in this exposure assessment.

Detailed Considerations

Toxicological Information

According to the Health Effects Division (HED) Hazard Identification Assessment Review Committee (HIARC) (D. Smegal, 3/4/99, "Chlorpyrifos - Hazard Identification Based on Animal Studies, Report of the Hazard Identification Assessment Review Committee"), for all population sub-groups, the acute population adjusted dose (aPAD) for chlorpyrifos is 0.0017 mg/kg/day (acute RfD of 0.005 mg/kg/day / FQPA 3x factor).

The acute dietary RfD of 0.005 mg/kg/day is based on a no-observed adverse effect level (NOAEL) of 0.5 mg/kg/day from an acute oral rat study that observed 28-40% plasma cholinesterase (ChE) inhibition 3-6 hours after dosing male rats with a single dose of 1 mg/kg/day. A 10x interspecies and 10x intraspecies uncertainty factors were applied to the NOAEL to calculate the aRfD. An acute dietary risk assessment is required for all population subgroups.

The FQPA Safety Factor Committee determined that the FQPA factor should be reduced from 10X to 3X. The factor is to be applied to both acute and chronic dietary exposures and to residential exposures (B. Tarplee, 4/5/99, "Chlorpyrifos - Report of the FQPA Safety Factor Committee, PC Code: 059101").

The dose and toxicological endpoint selected and Margins of Exposures for the acute dietary exposure assessment is summarized below in Table 2.

Table 2. Summary of Acute Dietary Toxicology Endpoint Selection

EXPOSURE SCENARIO	DOSE (mg/kg/day)	ENDPOINT	STUDY
Acute Dietary	NOAEL=0.5 UF[a] = 100 FQPA safety factor=3X	plasma cholinesterase inhibition at peak time of inhibition (3-6 hours post exposure) at 1 mg/kg (LOAEL).	Blood Time Course Study
	Acute RfD =0.005 mg/kg/day, Acute PAD=0.0017 mg/kg/day		

[a] UF = Uncertainty Factor (10x interspecies and 10x intraspecies variation)

Residue Information

Chlorpyrifos is a widely used insecticide that was listed by the National Academy of Sciences in Chapter 6 of their 1993 report, *Pesticides in the Diets of Infants and Children*, as one of the pesticides most often found in foods most frequently consumed by infants and children. Chlorpyrifos has tolerances on a large number of commodities, there are over 100 tolerances in 40 CFR 180.342. Tolerances for chlorpyrifos are being reassessed as part of reregistration. In particular, the metabolite 3,5,6-trichloro-2-pyridinol (TCP) will be removed from the tolerance expression, and only parent chlorpyrifos will remain.

Established policy allows use of both FDA's (Surveillance Monitoring Program) and USDA's (PDP) monitoring data only when conducting chronic dietary risk assessments, not when conducting acute assessments. However, a statistical procedure has been devised that allows results for composited samples to be used in an acute probabilistic dietary assessment. USDA's PDP was created in 1991 to collect data on pesticide residues in foods and was specifically designed for use in dietary risk assessment. The focus of FDA Surveillance Monitoring Program is enforcement of tolerances, i.e., detect misuse of pesticides. PDP's sampling procedures are statistically apportioned according to State population. The samples are collected at terminal markets and warehouse distribution centers which are closer to the supermarket, and eventual consumption, than to the farm. PDP's analytical laboratory procedures emphasize searching for PDP-required pesticide residues at the lowest possible limits of detection. Their quality assurance/quality control (QA/QC) protocols, which are based on the Agency's Good Laboratory Practices (GLPs), are designed to ensure the reliability of PDP monitoring data. PDP samples are composited samples, i.e., approximately five pounds of the commodity are chopped and blended together and the analytical sub-sample (or aliquot) is taken from this homogenate. Analytical results from these composited samples can be used by EPA in chronic dietary risk assessment, because the residues present in a composited sample are highly reflective of the residues consumed on average.

Until now, EPA has used PDP monitoring data in acute dietary assessments only for blended commodities, such as juices or oils. Because of the blending that occurs when batches of juice are made, use of average residues is appropriate. Because of the composited samples, use of PDP monitoring data directly in an acute (one-day, high-end exposure) dietary assessment is not

appropriate. Analyses of single-serving commodities, such as a single apple or potato, represent the highest concentrations that could be found in one serving of a commodity. It is the potentially higher residue on a single apple or potato that is of concern for an acute dietary risk assessment.

Recently, agency statisticians have developed a method using standard statistical procedures to adjust the composited residues to reflect residues that could be present, potentially, in single-serving sizes of commodities. The methodology assumes the following:
1) the weight of the sample that was composited based on PDP Standard Operating Procedures on the amount of sample collected, 2) the number of units (such as apples or oranges) in the sample that was composited, and 3) the distribution of residues in the units is lognormal. There are some data to justify the use of assumption #3. This method yields a distribution of theoretical single-serving residues (based on the composited residues) that would have resulted if the residue analysis had been done on single-serving items without compositing. Currently, this method is being applied to several of the acute dietary assessments for the first 9 organophosphates (OPs), but will require additional peer review and validation before it can be used routinely in acute dietary assessments. The Agency has conducted a paper peer review in which three nationally known statisticians have reviewed the methodology as well as responded to questions posed by the Agency. The Agency has presented this methodology to the Scientific Advisory Panel (May 1999).

The decomposition method has further led to a need to determine in detail which commodities must be decomposited. To accomplish this, commodities have been separated into three classes. The first class consists of those commodities that are blended on a wide scale prior to distribution and sampling, such as juices. Such wide scale blending averages the pesticide residues across growing regions and makes decompositing inappropriate. However, this wide scale blending assumption also means that a portion of the non-detects in monitoring cannot be calculated as zero using percent crop treated because the blending mixes both treated and untreated crops. These are called “blended” in this assessment.

The second class consists of commodities that are not blended, such as fresh whole apples, and need decomposition. These are called “non-blended” commodities in this assessment. The third class consists of those cases where commodities are not nationally blended, but are commingled or homogenized to the extent that decompositing is inappropriate. This occurs with small produce that is mixed together within a single serving, as well as within the analytical sample. Examples are small berries (grapes) or spinach leaves. These are called “partially blended” commodities in this assessment.

In this dietary exposure assessment there are also some samples that are neither blended nor partially blended, but which still cannot be reliably decomposited because there are an insufficient number of positive findings in the FDA or PDP sampling. In this exposure analysis these results are not decomposited. Emerging policy has suggested that this approach is appropriate when there are very few positive findings and all are well below the tolerance.

A final Agency policy for translation of monitoring data from one crop to another has not yet been formulated and submitted for public comments or peer review. Therefore, while the translations used in this assessment follow draft guidelines, they are also based upon crop groupings as defined in 40 CFR 180.41, best professional judgement, and the exigencies of the data at hand. For instance residue estimates for all root and tubers except radishes were based upon PDP data for sweet potatoes since, except for a small sampling for radishes, sweet potatoes were the only tuberous root crop for which adequate sampling data existed. Roots and tubers can be combined because they are all are treated with chlorpyrifos in the same manner and have the same BEAD estimated percent crop treated.

When using FDA Surveillance Monitoring data, results for the years 1992 - 1997 were used. Because, for a given commodity, FDA data may be limited for a given year, results are generally combined from all years. For PDP data, results from 1994 - 1997 were used.

For all samples analyzed by PDP, the value for ½ of the limit of detection (½ LOD) is calculated from the weighted average LOD across all non detected samples across all laboratories. For all samples analyzed by the FDA Surveillance Monitoring program, the ½ LOD and ½ the limit of quantitaion (LOQ) are taken from the memorandum by S. Hummel, 2/26/99, "LOQs for FDA Monitoring Data". That memo provides an estimate of ½ LOD = 0.00015 ppm and ½ LOQ = 0.0005 ppm for chlorpyrifos in all commodities.

For this analysis, PDP data for residues of chlorpyrifos on individual "single servings" of pears were available. These data were used for pears, but could not be translated to apples because of different use patterns (a single dormant application to pear trees versus up to 8 foliar applications to apples trees). The decomposition procedure was used for PDP data on apples, oranges, peaches, sweet potatoes, and tomatoes. It was also used on the NFS data for apples. The other NFS samples did not have to be decomposited because they represent blended commodities (applesauce, apple juice, orange juice, peanut butter, whole milk, ground beef and pork sausage). For NFS tomato data, an insufficient number of samples with detectable residues was present for decomposition, so these data were incorporated directly into the analysis

Field trial data were used to calculate acute anticipated residues for field corn, soybeans, cottonseed,, beans, sunflowers, tree nuts, and sugarcane. Tolerance level residues were assumed for mushrooms, figs, and mint. Although PDP collected monitoring data for soybeans in 1997, the sample collection was not considered sufficiently representative for use in risk assessment. Soybean sample collection was truncated at 159 samples because of funding constraints (plans were for 600 samples to be collected). When the 1998 PDP soybean data become available they can be incorporated into the risk assessment. Residue data for cranberries were provided by the Cranberry Institute. These data were submitted to the Agency and reviewed before being incorporated into the analysis.

<u>Dow Chlorpyrifos National Food Survey</u>

At their own initiative, Dow conducted a market basket survey in 1993 to better determine the dietary exposure of consumers to chlorpyrifos. The results of this survey have been reviewed by HED (L. Cheng, 5/19/98, D217707). Samples of fresh apple, applesauce, apple juice, orange juice, peanut butter, whole milk, ground beef and pork sausage were collected from grocery stores located in the 48 contiguous states in a year-long period; for fresh tomatoes, sampling was conducted in Florida only over a period of 9 months, because the use of chlorpyrifos was restricted to Florida at the time of sampling. Except for tomatoes, approximately 200 samples were collected for each commodity. The 9 food items were selected because of their significant contributions in the dietary exposure in general and in infants and children, and the potential of high residues based on modes of application (therefore excluding seed treatment of beans, dormant use, use in food handling establishments), and the percentage of the crops that are treated with this insecticide.
There were six apples and four tomatoes in the composite samples analyzed.

The collection of food items was conducted at the retail level and the retail outlets were selected using a national database containing more than 95,000 supermarkets, superettes and convenience stores.

FDA Total Diet Study

The FDA Total Diet Study (TDS), sometimes called the Market Basket Study, is an ongoing FDA program that determines levels of various pesticide residues, contaminants, and nutrients in foods, for the purpose of estimating intakes of these substances in representative diets of specific age-sex groups in the United States population. To accomplish this goal, FDA personnel purchase foods from supermarkets or grocery stores four times per year, one from each of four geographic regions of the country. Each collection, referred to as a Market Basket (MB), is a composite of like foods purchased in three cities in a given region. The foods are prepared for consumption, i.e., as they will be eaten, and then analyzed.

Starting with MB 91-3, 260 foods were included in TDS. Since then, several foods have been removed or added to accommodate availability. A total of 264 different foods are represented in the 18 MBs analyzed since that time.

It is important to an accurate understanding of TDS to realize that many of the food items are prepared recipes rather than a single food. For example, "apple, red, raw" is a food item and another is "lasagna with meat, homemade". In all cases, whether the item is a simple uncooked food or a prepared recipe, each ingredient is purchased in three different cities within the same region and each of the final food items is prepared for consumption. Before analysis, the three individual portions are combined. An appropriate aliquot of each combination is then taken for each analyses prescribed for that food.

The Agency typically does not use TDS results quantitatively in dietary exposure assessments, rather the data are used qualitatively. The results of the TDS can provide additional information

that complements PDP and FDA Surveillance Monitoring program results. TDS results for chlorpyrifos are summarized in Attachment 1.

Usage Data

Estimates of percent crop treated were supplied in a memo from BEAD dated 11/24/98 (Kiely, T. Quantitative Usage Analysis for Chlorpyrifos, PC Code: 59101) and most recently updated in a memo dated 5/11/99 (Kiely, T. Quantitative Usage for Chlorpyrifos, PC Code: 59101). In addition to these memos BEAD has supplied several supplemental and refined estimates electronically (Kiely, T. Chlorpyrifos in mushrooms 5/12/99; Kiely T. Re: Chlorpyrifos Percent Crop Treated, 4/26/99; Kiely, T. Chlorpyrifos in Imported Bananas, 4/7/99; Kiely, T. Re: Fresh Sweet Corn vs. Canned Sweet Corn, 4/28/99). Unless explicitly stated otherwise, the references cited to BEAD results all refer to Kiely, T. Quantitative Usage for Chlorpyrifos, PC Code: 59101, 5/11/99.

Uncertainties of Exposure Estimates

The Agency believes that the assessment presented is the most refined to date. However, there are some uncertainties associated with this exposure estimate as follows.

- For a number of commodities for which no chlorpyrifos tolerances have been established, PDP has found residues in more than one year of sampling. Examples include spinach, squash, and carrots. The residue data for these commodities are summarized in Table 3 below. Residues were also detected in celery (4 samples in 1994, 0.005 - 0.045 ppm), potatoes (1 sample in 1994, 0.024 ppm), and lettuce (1 sample in 1994 at 0.01 ppm). These residue results were not included in the Agency's dietary exposure assessment as they represent misuse of chlorpyrifos. However, because these violations have occurred over the years, excluding them may under-represent potential dietary exposure, especially for infants and children.

Table 3. Commodities which do not have chlorpyrifos tolerances established, but PDP monitoring has detected residues for more than one year.

Commodity	Year	# Samples with Detections	% Samples with detections	Minimum Residue Detected (ppm)	Maximum Residue Detected (ppm)
Carrots	1994	2	0.3	0.005	0.005
	1995	6	0.9	0.005	0.019
	1996	7	1.4	0.005	0.074
Spinach	1995	46	7.5	0.005	0.11
	1996	26	5.0	0.003	0.030
	1997	11	2.1	0.005	0.026
Squash	1997	4	1.8	0.005	0.005

The FDA Total Diet Study also contains data indicating that chlorpyrifos residues in/on spinach may occur. In the 18 surveys conducted from 1991 to 1997, measurable chlorpyrifos residues (ranging from 0.0009 to 0.004 ppm) have been found on cooked (boiled) spinach in 10 surveys.

- The consumption database used in the dietary exposure analysis (CSFII, 1989-1992) has a limited number of individuals in the age group infants less than one year old. The USDA is currently conducting the Supplemental Children's Survey (approximately 5000 children). The results of this supplemental survey are expected in December 1999.

- The dietary exposure analyses relied primarily on monitoring data obtained either "at the farmgate" in the case of FDA or in regional distribution warehouses for PDP data. The NFS results are for samples obtained at supermarkets, but only represent one year of data. Roadside produce stands, farmer's markets and similar outlets are not represented in the analyses. FDA TDS results are for foods prepared (cooked) according to standard consumer practices.

- Potential exposure to chlorpyrifos residues from consumption of fish was not addressed. No tolerances for fish are currently established. However, in 1992 the Agency Office of Water (OW) published a report (EPA 1992) that summarized chlorpyrifos residues found in freshwater fish. The primary focus of the study was monitoring for dioxin/furan in fish. However, chlorpyrifos residues were detected in 26% of the 388 sites tested, with median, mean, and maximum concentrations of non-detect, 4.09, and 344 ppb respectively. This study indicated that consumption of freshwater fish could contribute to dietary exposure to chlorpyrifos.

- No cooking factors could be incorporated in this dietary exposure analysis. If Dow has any such data they should be supplied to the Agency (this was noted in a memo from HED (S.Knizner) to

Dow on 4/7/95). If reduction of residues is noted upon cooking, this could lead to lower acute dietary exposure estimates.

- The NFS data supplied by Dow are now somewhat dated (samples were collected in 1993) in comparison to more recent PDP and FDA data, and are limited (200 samples). For some commodities included in the NFS, more recent and extensive data are available from monitoring programs. For example, the NFS included 200 apple samples, but PDP collected 1908 samples from 1994-1997 and FDA collected 1342 samples from 1992-1997. Because of the limited and dated NFS data, the Agency elected to conduct an exposure analysis, which only incorporated NFS data for beef and pork, because those are the best data available for meat. The Agency believes that this exposure and risk estimate most accurately reflects current dietary exposures. The NFS and PDP data for apples have a similar distribution of residue values, but the highest reported detectable residue in the NFS was 0.05 ppm, whereas for PDP it was 0.4 ppm. In general, PDP reported more detectable residues at higher concentrations than the NFS (i.e., more data at the high end or "tail" of the residue distribution. The ability to better define the tail of the distribution may be a function of the greater number of samples collected by PDP. Additionally, use of PDP data for samples collected over several years provides a residue profile representing potential differences in residue levels resulting from differing use of chlorpyrifos (because of differing pest pressures, climatic conditions, and other factors which may result in more or less use of chlorpyrifos on a local basis).

- Residues on food items potentially resulting from the food handling establishment use of chlorpyrifos are not addressed, as per current HED policy. It should be noted that no detectable residues of chlorpyrifos were measured on food items when food handling establishments were treated according to label directions.

Specific Residue Information and Exposure Assessment

The Dietary Exposure Assessment was performed using version 6.77 of DEEM™. DEEM™ is a software program that is a product of Novigen Sciences, Inc. and has been accepted by EPA for performing dietary exposure analysis. In this dietary assessment we analyzed 208 foods, comprised of 700 different food forms, and used 63 residue data files (RDFs). A description of the analysis of the individual foods and food forms follows.

Apples

During 1994 - 1997, PDP collected a total of 1908 apple samples, of which 425 samples (~22%) were positive for chlorpyrifos, ranging from the ½ LOD for each laboratory (average 0.026 ppm) to 0.4 ppm. Because apples are considered to be a non-blended commodity these results were decomposited using the method of H. Allender. (Allender, H. "Use of the Pesticide Data program (PDP) in Acute Dietary Assessment, " August 1998) to construct a Residue Data File (RDF). The samples were assumed to be composites of 15 apples, based upon a 5 lb sample weight and

an average, medium sized apple weight of 150 g (*USDA Handbook Number 8, Composition of Foods, Raw, Processed, Prepared)*. The 425 positive samples were decomposited into 1000 results per the Allender procedure. This process generated one theoretical result above tolerance, which was therefore removed. Because BEAD reported that 54% of the apple crop was treated with chlorpyrifos, the RDF consisted of 2108 zeros, 1378 values at the weighted average ½ LOD of 0.00257 ppm, and 999 positive findings.

Note that FDA has also analyzed 1342 fresh apples between 1992 - 1997. FDA had 211 (~16%) positive results ranging from "trace" findings to 0.3 ppm. In addition, data from the FDA Total Diet Study (TDS) are available for chlorpyrifos in apples. TDS samples are purchased at grocery stores and apples are washed before analysis. Measurable residues of chlorpyrifos (>0.001 ppm) were found in apples for fourteen of the eighteen TDS surveys conducted from 1991 to 1997. Results ranged up to 0.103 ppm, with a mean of 0.012 ppm.

Dow also submitted a market basket survey for fresh apples. At 200 samples it was about one tenth the size of the PDP database. This survey contained 68 positive samples (~34%) ranging from LOD of 0.001 to 0.052 ppm. As noted in the summary, HED has performed one exposure assessment using the larger PDP data set and another assessment using the market basket survey results. Since the samples in the NFS were also composites of six apples each, these data were also decomposited by the method of Allender. This yielded an RDF of 2899 zeros, 536 at ½ LOD of 0.001 ppm and 1000 positive findings. None of the residue values generated in this process were above tolerance.

Cooked, fresh apples were assumed to be non-blended, and used the same decomposited RDF as the fresh whole apples.

Apples - Canned and Frozen and Dried

All canned and frozen food forms of apples were considered to be partially blended. The residue data files (RDFs) for these processed apples were therefore constructed directly from the PDP and market basket composite sample data. For the partially blended apple food forms using the PDP data an RDF was created with 897 zeros, 587 at LOD of 0.0025 ppm and 425 positive findings. For partially blended food forms from the market basket study, the RDF was 94 zeros, 37 at ½ LOD of 0.001 ppm and 69 positive findings.

For the partially blended food forms of apple, the RDF for the NFS analysis for the market basket survey of apples was corrected to 94 samples at zero, 37 at ½ LOD of 0.001 ppm and 69 positive findings. The registrant had originally multiplied all values by 6 to compensate for collecting composite samples of 6 apples each, therefore the positive values were corrected by dividing those results listed in the registrants RDF by 6.

The registrant also submitted a separate market basket survey for apple sauce, however, apple sauce is not a food form listed in DEEM™. The closest food form listed in DEEM™ is "apples,

canned, cooked." Applesauce was therefore used only for the NFS market basket assessment and only for this DEEM™ food form. Applesauce is a blended commodity, so per cent crop treated could not be used to set some non-detects to zero, and the RDF for apple sauce had 196 samples at ½ LOD of 0.001 ppm and 4 positive results at 0.004 ppm.

The FDA TDS also sampled applesauce. In the 18 survey samples analyzed from 1991 to 1997, 15 samples of "applesauce, strained, junior" (food code 225) had measurable residues of chlorpyrifos, the mean value was 0.00041 ppm, and the range from 0.001 to 0.01 ppm. For "applesauce, bottled" (food code 084) 3 of the 18 survey samples had measurable residues (mean, 0.0008 ppm, range 0.0007 to 0.001 ppm).

Dried apple was considered to be blended and a single point estimate was calculated as an average of the partially blended Residue Data File (RDF) at 0.00656 ppm and the default DEEM™ processing factor of 8.0.

Apple Juice

During the years 1996 -1997 PDP collected a total of 860 samples of apple juice, with one positive finding at 0.015ppm. Because apple juice is a blended commodity, all non detects were calculated at the weighted average ½ LOD = 0.003. The RDF therefore consisted of 859 samples at 0.003 ppm and one at 0.015 ppm. Apple juice concentrate was calculated from the apple juice RDF times the default DEEM™ processing factor of 3.0.

The registrant also submitted a 200 sample market basket survey for apple juice. The RDF consisted of 198 results at the ½ LOD of 0.0004 ppm and 2 results at 0.015 ppm. This was used in the NFS market basket assessment only.

Asparagus

During the years 1992 - 1997, FDA reported results from 166 samples of asparagus with 2 positive findings at 0.087 and 0.0005 ppm. Although asparagus is assumed to be non-blended, because there were only two results, and because both were low, these data were not decomposited. According to BEAD, up to 12% of the asparagus is treated with chlorpyrifos. The processed food forms of asparagus are assumed to be partially blended, but this is equivalent to non-blended where samples are not decomposited. A single RDF was created for asparagus with 146 zeros, 18 at 1/2LOD of 0.00015 ppm and the two positive findings.

Bananas

There were 1126 reported results for bananas in the PDP data from 1994 to 1997. All were ND, with a weighted average LOD of 0.00606. A memo from BEAD indicated that 14% of imported bananas are treated with chlorpyrifos. (Kiely, T. Chlorpyrifos in Imported Bananas, 4/7/99) Because there were no positive findings, partially blended banana products did not need to be

treated differently from whole non-blended bananas. A single RDF was created for bananas of 968 zeros and 158 samples at a weighted 1/2LOD of 0.00303.

An average residue estimate of 0.000423 ppm was used for dried banana in place of the RDF file for non-blended bananas because dried banana has been considered to be blended. The RDF for non-blended bananas was used for all food forms of plantains, which have all been considered to be non-blended.

Cherries

FDA analyzed 410 samples of cherries between 1992 - 1997. Of these samples, 55 were positive for chlorpyrifos, and results ranged up to 0.257 ppm, however 45 of these positive results were "trace" findings. Such trace findings are assumed to be at ½ the Limit of Quantification (LOQ), which is 0.0005 ppm for all FDA analyses of chlorpyrifos. Note that 43 of the 55 positive samples came from the Northwest (Oregon or Washington.) According to BEAD a maximum of 24% of sweet cherries and 14% of tart cherries are treated with chlorpyrifos. (Kiely, T. Re: Fresh Sweet Corn vs. Canned Sweet Corn, 4/28/99). Two residue data files (RDFs) were therefore created for cherries - one for sweet and one for tart. The sweet cherry RDF was used only for the fresh cherries and for home cooked cherry food forms. The tart cherry RDF was used for all dried, canned or frozen cherry commodities. Because FDA did not specifically separate sweet and tart cherries in their monitoring program, it was necessary to use the same monitoring data for both varieties. Cherries are partially blended, so the FDA data was used without decompositing. For sweet cherry the RDF consisted of 312 zeros, 43 samples at ½ LOD of 0.00015 ppm, 45 at ½ LOQ of 0.0005 ppm and 10 other hits. For tart cherry the RDF consisted of 353 zeros, 2 at ½ LOD of 0.00015 ppm, 45 at ½ LOQ and 10 other hits.

For cherry juice, which is a blended commodity, an average point estimate was calculated using the tart cherry file at 0.00119 ppm. In addition, the grape juice processing factor of 0.3 was applied for cherry juice.

Cranberries

Insufficient FDA monitoring data were available for cranberries for use in this risk assessment. FDA did monitor cranberries for chlorpyrifos, with 74 samples tested and 26 positive results for cranberries between 1992 to 1997, however HED currently requires that a minimum of 100 samples are needed for an acceptable survey data set.

The Cranberry Institute has generated monitoring data for chlorpyrifos in cranberries and has submitted it to EPA. 139 samples of cranberries were tested over a period of three years from 1996 to 1998. There were 35 positive findings for chlorpyrifos ranging from 0.01 ppm to 0.34 ppm. The average positive finding was 0.076 ppm. This is a sufficient number of samples to use for dietary exposure assessment and the method of analysis and quality assurance program have been determined to be adequate to support the results.

The sampling program used by the Cranberry Institute was primarily designed to minimize any potential exposure from residues on cranberries and was not intended for generating strictly randomized results for risk assessment. Sampling is scheduled for all cranberry growing regions and is prorated to each region by the size of the crop in that region. The program is designed to sample every grower in each region at least once every three years, and sampling from each individual grower is also prorated by acreage and by any factors that might result in increased exposure, such as when a new pest treatment is being introduced. Within those constraints, samples are tested on a scheme of "random" choice. While this program is not strictly random, it is designed to provide a balanced survey of the cranberry crop, and to provide a conservative (worst case) overview of pesticide residues in cranberries.

The limited FDA monitoring data that is available is comparable to the data from Ocean Spray and supports the reliability of their testing. The Cranberry Institute also submitted supporting results in processed cranberry juice cocktail and other processed products. While these data have not been used in this exposure assessment, they indicate that residues of chlorpyrifos are non-detectable (>0.01 ppm) in cranberry products.

Using 60% crop treated from BEAD, the Ocean Spray data on raw, whole cranberries was used to create an RDF file with 56 zeros, 48 results at ½ LOD and 35 positive findings.

Cucumber

FDA monitored cucumbers for chlorpyrifos from 1992 to 1997. FDA reported results for 407 samples, with one positive finding of 0.080 ppm. BEAD reported 1% of the crop was treated. An RDF file was constructed with 403 zeros, 3 samples at ½ LOD of 0.00015 ppm and 1 positive finding at 0.080 ppm. Fresh cucumber is non-blended, but because there was a single finding that was not high, no decomposition was needed. The same RDF was used for canned and cured cucumber food forms.

Grape

Between 1994 - 1997 PDP analyzed 1884 grape samples with 162 positive findings (8% detect rate) ranging up to 0.44 ppm. BEAD independently estimated that the percent crop treated for grapes was 1%. This meant that the number of positive findings far exceed the number expected from the percent crop treated. Grapes are partially blended, so decompositing is not appropriate. Therefore an RDF for fresh, whole grapes was constructed of 1722 zeros, none at ½ LOD, and 162 positive results. Note that FDA also collected 477 samples of grapes between 1992 - 1997 with 8 positive findings, or a detect rate of about 2%.

For blended grapes an RDF was created with the 162 positive findings and the 1722 remaining samples set at ½ of the weighted LOD, calculated at 0.00286 ppm. This estimate was used for grape juice with an added processing factor of 0.3 (Knizner, S. Chlorpyrifos Anticipated Residues for DRES Acute Analysis, DP Barcode: D216468, 10/95). The same estimate was used for grape

wine with a DEEM™ default processing factor of 1. For grape leaves the grape RDF with the DEEM™ default processing factor of 1.5 was used. For grape raisins the grape RDF was used with the processing factor of 0.17 (Knizner, S. Chlorpyrifos Anticipated Residues for DRES Acute Analysis, DP Barcode: D216468, 10/95).

Green Beans

Between 1994 - 1995 PDP analyzed 1178 samples of fresh green beans. No samples had detectable residues. BEAD reported 0% crop treated; however, HED policy is to round up to 1% crop treated. Fresh green beans are categorized as partially blended and the data were used without decomposition. An RDF was created with 1166 zeros and 12 at the weighted 1/2LOD of 0.0034 ppm. Fresh green beans were also monitored by FDA. FDA tested 665 samples of green beans between 1992 - 1997 and found 4 samples positive.

An additional 1238 samples of canned and frozen green beans were analyzed by PDP in 1996-1997. These are also categorized as partially blended and were used for all canned/frozen food forms of green beans. A processed green bean RDF was created with 1226 zeros and 12 at the weighted 1/2LOD of 0.0032 ppm.

Sweet Peas

During the years 1994 - 1996 PDP analyzed 1458 samples of canned and frozen sweet peas with one positive finding at 0.005 ppm. Because canned and frozen peas are considered to be partially blended the PDP data were used without decomposition. BEAD reported 1% of the crop was treated. This yielded an RDF with one positive result, 14 samples at ½ the weighted average LOD of 0.0025 and 1443 samples set at zero. This data was used for all processed food forms of peas. Note that between 1992 - 1997 FDA analyzed 501 samples of fresh English peas for chlorpyrifos with no positive findings. The PDP data on canned/frozen peas was used for fresh peas in preference to the FDA data because FDA does not wash or shell peas prior to analysis.

Other Succulent Beans and Peas

All other succulent beans and peas are either 1% crop treated or are less and are assumed to be 1% crop treated for this assessment. Therefore, the PDP data for green beans were translated to these other legumes.

Dried Beans and Peas

Chlorpyrifos is used on all of these dried legume commodities as seed treatments, all at the same rate, and the tolerance of 0.05 ppm is also the same for all commodities. All percent crop treated values for these commodities were either estimated by BEAD at 1% or were rounded up to 1% for this dietary exposure assessment. There are no PDP data on dried beans or peas, but FDA has collected limited sample of each commodity as shown in the table below. The FDA LOD

reported is the same for all commodities and so could be applied to all equally. Thus, these commodities could be combined to create a set of more than 100 samples, however, because dried beans are blended, all non-detects in the FDA monitoring would be calculated as ½ LOD. No zeros could be introduced for the percent crop treated, even though it was estimated to be below 1%. On the other hand, if field trial data were used zeros could be included in the analysis, but the results of the field trials are approximately the same as the tolerance. Therefore ½ tolerance times 1% crop treated was used as a point estimate for the entire dried bean/peas blended commodities. The anticipated residue is 0.025 ppm tolerance X 1% CT = 0.00025 ppm.

Table 5. FDA Monitoring Data for Dried Beans and Peas

COMMODITY	NUMBER OF ANALYSES	NUMBER OF DETECTS	RESIDUE (ppm)	½ LOD
Cranberry beans	3	0		0.00015
garbanzo beans	4	0		0.00015
kidney beans	29	0		0.00015
lima beans	22	0		0.00015
navy beans	15	0		0.00015
pinto beans	46	0		0.00015
black beans	3	0		0.00015
black-eyed peas	11	0		0.00015
English peas	86	4	0.030, 0.016, 0.017, 0.017	0.00015
field peas	1	0		0.00015
lentils	62	0		0.00015
other	75	0		0.00015
TOTAL	357	4		0.00015

Kiwi Fruit

In the years 1992-1993 and 1996-1997 FDA analyzed 124 samples of Kiwi fruit and found only one detect at 0.010 ppm. Compared to the tolerance of 2.0 ppm, this result was low, and was the only positive finding, so an RDF was created without decomposition. BEAD did not report a percent crop treated for kiwi so 100% was used. The resulting RDF included no zeros, 123 samples at ½ LOD of 0.00015 ppm and the one positive finding.

Sweet Corn

BEAD has reported that 22% of the sweet corn crop grown for sale as fresh corn is treated with chlorpyrifos, while 9% of the sweet corn crop grown commercial processing is treated with chlorpyrifos. In addition, separate data sets of FDA analyses of fresh sweet corn and PDP analyses of canned and frozen sweet corn were available. Therefore 2 RDFs were created for sweet corn.

Between 1992 - 1997 FDA analyzed 713 samples of fresh sweet corn for chlorpyrifos and had no positive findings. Since BEAD reported 22% crop treated for fresh marketed sweet corn, an RDF for fresh sweet corn was created with 556 samples at zero and 157 samples at ½ LOD.

Between 1994 - 1997 PDP analyzed 1306 samples of canned or frozen sweet corn for chlorpyrifos and had no positive findings. The weighted average LOD for these samples is 0.004859 = 0.00243 for ½ LOD. Since BEAD found that 9% of sweet corn raised for processing was treated with chlorpyrifos, the RDF for canned/frozen sweet corn contained 1188 zeros and 118 samples at ½ LOD.

Figs

Anticipated residues for figs were calculated from the tolerance of 0.01 ppm. BEAD reported 0% crop treated. To be conservative the fig anticipated residue was calculated as 1% crop treated, yielding 0.0001 ppm.

Mint Oils

Mint oils, spearmint and peppermint, are blended commodities and an average point estimate was therefore calculated for them using the tolerance for chlorpyrifos on mint hay of 0.8 ppm and a processing factor of 10 (MRID 00034031), combined with a BEAD estimated percent crop treated of 27% to yield 2.16 ppm.

Broccoli

PDP analyzed 679 samples of broccoli from 1994-1997. Of these, all but 11 were ND. Of the 11 positive samples, 9 were below quantifiable limits (BQLs). A BQL in PDP data is similar to a trace finding in FDA data and both are calculated at ½ the LOQ. The remaining 2 results were 0.025 and 0.014, with LODs averaging 0.005 and a tolerance of 1 ppm. Because there were few positive samples, and all were low, the results were used without decompositing. Bead estimated that 51% of the broccoli crop is treated with chlorpyrifos. An RDF was created of 333 zeros, 335 at the weighted average ½ LOD of 0.00269 ppm, and 11 positive findings.

Brussels Sprouts

Brussels Sprouts were translated from the PDP data for broccoli, using a BEAD estimate of 100% crop treated. This yielded an RDF of 12 positive findings and 667 samples at the weighted ½ LOD of 0.00269 ppm.

Other Brassica - Cabbage, Cauliflower, Collards, Kale, Kohlrabi, Mustard Greens

Between 1992-1997 FDA had analyzed all Brassica crops except kohlrabi for chlorpyrifos. The FDA results are tabulated below. The FDA data for cauliflower, cabbage, collards, kale and bok choi were used directly for each of those commodities. The results for all were used without decompositing because all had less than 30 positive findings and the last three of these commodities are partially blended. Although there were slightly less than 100 samples for bok choi, 96 samples was considered acceptable. There were no data on kohlrabi, so the file from collards was translated to kohlrabi with an adjustment for percent crop treated. There fewer than 100 results for mustard greens, so the data from collards was also translated to mustard greens with an adjustment for percent crop treated. Note that all label treatment rates are almost exactly the same for all of these crops.

Table 6. FDA Data for Different Brassica

RAC	% crop treated	Number of Samples	No. of Detects	Residues (ppm)
cabbage	23%	491	8	0.070, 0.120, 0.0005, 0.010, 0.120, 0.135, 0.163, 0.043
cauliflower	36%	256	0	-
bok choi	assume 1%	96	1	0.200
collards	13%	147	4	0.0005, 0.020, 0.180, 0.020
kale	assume 1%	113	5	0.120, 0.010, 0.400, 0.145
mustard greens	assume 1%	85	3	0.100
kohlrabi	assume 1%	none reported	none reported	
TOTAL		1200	21	

The specific RDF created for cabbage was 378 zeros, 105 samples at 1/2LOD of 0.00015 ppm and 8 positive results. The RDF for cauliflower was 164 samples at zero and 92 samples at the 1/2LOD of 0.00015 ppm. The RDF for bok choi was 95 samples at zero and 1 positive result at 0.2 ppm. The RDF for collards was 128 zeros, 15 at ½ LOD of 0.00015 ppm and 4 positive results as noted in the table above. The RDF for kale was 108 zeros and 5 positive results as noted above. The RDFs for mustard greens and kohlrabi had 143 zeros and 4 positive results from collards.

Tree Nuts

The only available information of any significance for the tree nuts is from field trials. FDA did not analyze sufficient numbers of tree nut samples to use their data for risk assessment. Acceptable field trials have been performed for chlorpyrifos on various tree nuts, primarily almonds and walnuts (MRIDs 00132786, 00044555, 00116675, 41424401). The results of the field trials are tabulated below (Table 7a). All results are measured as the total TCP common moiety expressed as chlorpyrifos. The field trial data has been deemed adequate to establish the crop group tolerance.

RDFs were created using only those field trials where the treatment consisted of 3 treatments of 2 lbs/A with a PHI of 14 days (see table below). Combining almonds and walnuts provided 22 data points. All other nuts were translated from these. The BEAD estimated percents crop treated are 29% for almonds, 36% for pecans, 39% for walnuts and 9% for other tree nuts. Four RDFs were created, each using the almond and walnut data, but incorporating the different percents crop treated. Thus the RDF for almonds consisted of the 22 field trial data points plus 54 zeros based upon 29% crop treated. For pecans there were the 22 field trial points and 39 zeros; for walnuts there were 34 zeros and the 22 data points; and for all other nuts the 22 field trial data points were combined with an estimated 222 zeros.

No LOD was reported for the method used in the field trials for nuts. Rather the sensitivity of the method was limited by the peak height found at the analyte retention time in the individual associated control samples. The corrected results in Table 7a were determined in the studies by subtracting the control results from the incurred results. Results of <0.025 meant that the results were <0.025 over the control results. Results reported as ND meant that the samples were not higher than the controls. Since the field trials clearly did not use averages of the control results, but used the highest control value in deciding whether a result was a reportable amount or ND, these highest results for the controls constituted the practical LOD. This LOD value varied from set to set, making it difficult to calculate a single LOD. However, except for a single control result at 0.042, all results were less than 0.026, with several highest results at 0.023, 0.020 etc. Therefore, all ND results were set in the RDF files as ½ of 0.026 = 0.013. All results reported at <0.025 were set as ½ (0.026 + 0.025) = 0.026.

Table 7a. Field Trials for Tree Nuts

RAC	Site	Treatment	Number of Treatments	Lbs ai/A	PHI	Number of Samples	Results in Nutmeat
Almonds	Modesto	foliar	3	1.6	14	2	ND x 2
	Modesto	foliar	3	2.0	14	2	ND x 2
	Modesto	foliar	3	1.6	14	2	.04, <0.025
	Modesto	foliar	3	2.0	14	2	.03, <.025
	Davis	foliar	3	2.0	14	4	.04 x 3, ND
	Davis	foliar	3	2.0	14	4	.04, .04, .09, ND
	Sanger	foliar	3	2.0	16	4	.05, .07, .03, .06
	Sutter	foliar	3	2.0	15	4	.05, .03, .03, <.025
	Davis	foliar	3	2.0	14	4	.08, .09 X 2, .11
	Davis	foliar	3	2.0	14	4	.08 X 2, .07 X 2
Walnuts	Davis	foliar	3	2.0	12	4	ND x 4
	Davis	foliar	3	2.0	12	4	ND x 4
	Davis	foliar	3	2.0	12	4	ND x 4
	Davis	foliar	3	2.0	12	4	ND x 4
	Visalia	foliar	3	2.5	17	4	ND x 3, <0.025
	Butte City	foliar	3	2.0	14	2	ND x 2
Almonds	Modesto	dormant	1	4???	N/A	4	<.05 x 4
	Modesto	dormant	1	4???	N/A	3	<.05, 2 X ND
	Arbuckle	dormant	1	4???	N/A	4	2 X .05, 2 x <.05
	Arbuckle	dormant	1	4???	N/A	4	4 X ND
	Davis	dormant	1	4???	N/A	9	8 x ND, <.05
Walnuts	Davis	dormant	1	4???	N/A	4	4 X ND

Table 7b. Comparison of Treatments for Different Tree Nuts

RAC	Treatment	Number of Treatments	Lbs/A	PHI
Almonds	dormant	1	2.0	N/A
	dormant	1	1 - 3	N/A
	foliar	3	2	14
	tree trunk	2	.015 - .045/tree	14
	soil	2	4	14
Filbert	foliar	3	2	14
Macadamia	foliar	8	1	14
Pecans	foliar	5	1 - 2	28
	soil	5	1 - 2	N/A
Walnut	dormant	1	2	N/A
	foliar	2	2	14

Milk

In 1996 and 1997 PDP reported 1297 results for milk. All were ND. The weighted ½ LOD was 0.000723. The food forms for milk are then calculated as milk sugar, protein and water all equal the results for milk at ½ LOD = 0.000723. The food form, milk fat, was calculated as 100% fat, with chlorpyrifos partitioning at 100% into the fat, an whole milk being 3.25% fat. The 3.25% value is the minimum fat allowed in whole milk by the FDA standard of identity 21 CFR 131.110. *USDA Handbook 8, Composition of Foods, Raw, Processed and Prepared,* shows an average empirical fat content of 3.34% for the whole milk with a 3.25% fat standard of identity. Milk fat is thus calculated as 0.000723/0.0325 = 0.02225 ppm.

The registrant also submitted a market basket survey for milk. The RDF for the market basket consisted of 200 results all at the ½ LOD of 0.001 ppm. The PDP data was used for the assessment based upon monitoring data and the NFS data was used in the assessment using all of the market basket results.

Beef, Goats, Horses, and Sheep - Fat, Liver, Kidney, Muscle and Meat Byproducts

The registrant did a market basket survey of ground beef, collecting 200 samples with an LOD of 0.002 ppm. Of 200 samples, 199 were ND and 1 sample had 0.0025 ppm chlorpyrifos. The assumption was made that chlorpyrifos was found in ground beef to about the extent it would be found in the whole animal muscle tissue. Although chlorpyrifos should tend to partition towards the fatty tissues, this assumption was made because the uncertainty in ground beef fat content and in the fat content of a whole beef carcass is larger than any difference between the two.

Handbook 8 indicates that whole beef carcasses usually have around 23 - 24 % fat. Ground beef can have as much as 30% fat, but is also frequently sold with less than 20% fat. Most ground beef ranges between 17 to 25% fat. No information was available about the fat content of the samples collected by the registrant. Because in the livestock feeding studies kidney and liver samples were generally ND, the conservative assumption was made that kidney, liver, and meat byproducts would have the same chlorpyrifos content as muscle. Fat was assumed to have 5 times more chlorpyrifos incurred than the ground beef assayed in the market basket. This was based upon livestock feeding studies demonstrating that chlorpyrifos concentrates in the fat about 5 times the lean and the fact that ground beef usually contains somewhere around 17 - 25% fat. The RDF that was submitted contained 199 samples at ½ LOD of 0.001 ppm and the one positive finding. This was used in both the monitoring data based assessment and the market basket assessment.

Gelatin

Gelatin is extracted from the skin, bones, etc of animals otherwise used for food. Most of it is most likely to be beef derived gelatin. Therefore, for gelatin the average result from the ground beef market basket survey was used of 0.001008 ppm.

Pork Fat, Muscle, Kidney, Liver and Meat Byproducts

The registrant performed a market basket survey of 200 samples of pork sausage, finding 199 samples ND, and 1 sample with detectable residues at 0.0035 ppm. The same assumptions made for beef were made for pork. Whole hog carcasses average about 35% fat and pork sausage averages 40% fat. The pork fat was assumed to contain five times the amount of chlorpyrifos found in the pork sausage. This is a very conservative estimate based on the fact that chlorpyrifos tends to concentrate in fat over lean by a factor of about 5, and the fact that, according to *Handbook 8*, pork sausage usually has somewhere near 40% fat. The RDF that was submitted for pork consisted of 199 samples at ½ LOD of 0.001 ppm and the one positive result. This was also used in both assessments.

Veal

Veal is only fed milk or milk replacer. Since residues were estimated in milk not to contain more than 0.000723 ppm chlorpyrifos, veal was accepted as containing essentially zero residues of chlorpyrifos, and was not entered in this assessment.

Poultry and Eggs

Anticipated residues were calculated for these commodities using acceptable animal feeding studies (MRID 00095179, 00058087 and 00095438). Residues were calculated based on a diet of field corn grain and peanut meal, or wheat grain and peanut meal. Peanut meal was used in place of soy because there some concerns about the calculated residues in soybeans at the time of

this analysis. The two feeds were estimated to result in a dietary burden of 0.004 ppm. From feeding studies done at 10 ppm dietary burden, the lowest concentration that resulted in measurable residues, the calculated residues in poultry tissues and eggs were as tabulated below.

Table 8. Anticipated residues in Poultry and Eggs

TISSUE	ESTIMATED RESIDUE CONCENTRATION
Muscle	0.000001 ppm
Liver	0.000001 ppm
Kidney	0.000001 ppm
Eggs	0.000002 ppm
Fat	0.000013 ppm

Peppers

All peppers are treated at the same rate, and all have a 7 day PHI. Although tomatoes are treated at the same rate as peppers, tomatoes have a 14 day PHI, so peppers should not be translated from tomatoes. BEAD provided an estimate that 3 percent of the bell pepper crop is treated with chlorpyrifos. No similar treatment information is available for hot peppers. FDA tested 368 bell peppers between 1992 - 1997, with 19 positive results. This number of positive results is well in excess of the estimated percent crop treated. Some of these results were also quite high, ranging up to 0.770 ppm and 0.930 ppm. Never the less this data set was not decomposited, because 19 samples were not sufficient to provide statistically reliable projections. An RDF was created of 19 positive results and 349 zeros.

Sugar Beets

Sugar beets are treated similarly to other roots and tubers, except sugar beets are 10% crop treated while others are 19%. There is very little FDA data available on sugar beets, and no data from PDP. Therefore, the decomposited data from sweet potatoes and also used for other roots and tubers was used for sugar beets, but was corrected for 10% crop treated. Therefore, for sugar beets an RDF of 1073 zeros and 129 positive results was created. No processing factor was used for beet sugar.

Leaves of Roots and Tubers

The FDA data available for root greens was not adequate for risk assessment and no PDP data were available. The residues found in the root crops could not be extended to the greens because these data could not capture the effect of translocation from the roots to the leaves. However,

the treatment rate for these crops was the same as for collards, and both were soil applied. Therefore, an RDF file for root greens was translated from collards, but using the 19% CT that BEAD estimated for roots and tubers. An RDF consisted of 119 zeros, 24 samples at ½ LOD of 0.00015 ppm and the 4 hits from collards.

Wheat

The wheat file used PDP data from 1995 - 1997. There were 1573 samples, with 206 positive findings, of which 184 were BQLs. Since wheat is blended, all non-detects were set at ½ LOD (weighted average LOD = 0.00482) and no decompositing was done. An RDF was created for wheat grain consisting of the 206 positive findings and 1367 results at ½ LOD of 0.00241 ppm. This whole grain RDF was used for all forms of wheat, including wheat flour, based on the best current opinion that national blending is not a significant factor in going from wheat grain to wheat flour. The data from wheat, however, was transformed to wheat flour using a processing factor of 0.145 (Flood, M. PP#3F2947, 8/10/92). Note that FDA also sampled wheat and had very similar results to those found by PDP.

Field Corn Grain

The assessment used acceptable field trial data to calculate an acute anticipated residue in corn at 0.00088 based upon average field trial results of 0.011 ppm and 8.0 % crop treated (MRID 00070509). To convert corn grain data to corn sugar and syrup a processing factor of 0.05 was used (Knizner, S. Chlorpyrifos Anticipated Residues for DRES Acute Analysis, DP Barcode: D216468, 10/95). To convert corn grain to corn oil a processing factor of 4.5 was used (also Knizner, S. Chlorpyrifos Anticipated Residues for DRES Acute Analysis, DP Barcode: D216468, 10/95).

Soybeans

As noted in the Uncertainties sections of this document, PDP data for soybeans from 1996 were available, but are not suitable for risk assessment purposes because the sampling program was truncated because of budget constraints.

Field trial data are available in MRID #00095270 depicting residues of chlorpyrifos per se in/on soybeans. Only one field trial reflects current label rates (maximum seasonal application rate of 3 lb ai/A and 28 day PHI). The other 5 available field trials reflect higher application rates (5 lb ai/A) and slightly longer PHIs (28-38 days). The data are summarized below in Table 9.

Table 9. Soybean Field Trials

Location	Application rate (lb ai/A)	PHI (Days)	ppm Chlorpyrifos
MS	3	28	0.004 0.002 0.003
IL	5	28	0.016 0.009 0.011
GA	5	30	0.001 0.010 0.003
IA	5	30	0.024 0.052 0.017
NE	5	31	0.010 0.008 0.005
NC	5	38	0.014 0.240 0.142

Soybean Oil

The average residue for these field trials is 0.032 ppm x 1% crop treated.. This value was used for soybean oil with a processing factor of 0.14. (Knizner, S. Chlorpyrifos Anticipated Residues for DRES Acute Analysis, DP Barcode: D216468, 10/95)

Cottonseed Oil

For cottonseed oil an average field trial result of 0.12 ppm and a processing factor of 0.375 for cottonseed oil were combined with taken from BEAD estimated 6% crop treated. In detail, a cottonseed processing study was reviewed in conjunction with PP#5G1595 (A.Rathman, 5/2/75). Cottonseed bearing total residues (chlorpyrifos and TCP) of 0.16 ppm was used for processing. Crude and refined oil processed from these cottonseeds contained 0.14 ppm and 0.06 ppm respectively. CBRS (then RCB) concluded that no tolerances are needed for processed fractions of cottonseed. A reduction factor of 0.375 is obtained for refined cottonseed oil.

According to the Chlorpyrifos RED, the maximal seasonal application rate for cotton is 6.0 lb ai/A and maximum single application rate is 1.0 lb ai/A. Applications can be made using ground equipment, sprinkler irrigation, or aerial equipment. A 14 day PHI is in effect.

Data are available in MRID #40131303 (1987) reflecting application of chlorpyrifos to cotton in CA. Five applications were made at 1.0 lb ai/A/application. Samples were harvested 14 days after the last application. Average chlorpyrifos residue reported for cottonseed was 0.183 ppm (4 samples).

Data are available in MRID #00037455 (1975) reflecting application of chlorpyrifos to cotton in TX. Four applications were made at 0.25 lb ai/A/application followed by 12 applications at 1.0 lb ai/A/application. Samples were harvested 18 days after the last application. Average chlorpyrifos residue reported for cottonseed was 0.103 ppm (4 samples).

Data are available in MRID #00095373 (1974) reflecting application of chlorpyrifos to cotton in MS. Nine applications were made at 1.0 lb ai/A/application. Samples were harvested 14 days after the last application. Average chlorpyrifos residue reported for cottonseed was 0.070 ppm (3 samples).

Based on the average residue from these field trials (0.12 ppm) and a reduction factor of 0.375 upon processing into refined oil, for chlorpyrifos acute anticipated residues, a value of 0.045 ppm should be used for cottonseed oil. (Knizner, S. Chlorpyrifos Anticipated Residues for DRES Acute Analysis, DP Barcode: D216468.)

Oranges

From 1994 - 1997 PDP analyzed 1891 samples of oranges with 144 positive findings ranging up to 0.028 ppm. These results were decomposited by the method of Allender. Samples were assumed to be composites of 14 oranges based upon a 5 lb sample and a weight of 160 g for a medium orange (*USDA Handbook Number 8, Composition of Foods, Raw, Processed, Prepared*). BEAD has reported that 19% of the total orange crop is treated with chlorpyrifos, however BEAD also provided estimates that 10% of oranges used for processing and 54% of oranges eaten fresh are treated with chlorpyrifos (Kiely, T. Re: Fresh Sweet Corn vs. Canned Sweet Corn, 4/28/99). To accommodate these differences two different RDFs were created. One file was for fresh, whole non-blended oranges. This was created by decompositing the PDP positive findings, and adjusting with 54% CT. This RDF consisted of 6044 zeros, 6095 at ½ the weighted average LOD of 0.0021 ppm and 1000 positive findings.

For processed, partially blended orange food forms the PDP data was used directly without decompositing, assuming 10% crop treated. This yielded an RDF of 1702 zeros, 45 at ½ the weighted LOD of 0.0021 ppm and the 144 positive findings.

Orange Juice

In 1997 PDP analyzed 692 samples of orange juice for chlorpyrifos, with one positive finding at 0.005 ppm. The weighted average ½ LOD was 0.0025 ppm. No percent crop treated for oranges was used for orange juice because orange juice is a blended commodity and all non-

detects are assumed to have ½ LOD. Since there were analytical results calculated directly in the juice, no processing factor was used. However, orange juice was also translated to orange juice concentrate. In this case the ratio of the ratio of the DEEM™ default factors for juice and juice concentrate was retained. The RDF created for orange juice consisted of 691 samples at ½ LOD of 0.0025 ppm and the one positive finding.

Note that the registrant also submitted a market basket survey of orange juice. For the market basket the RDF consisted of 194 samples at ½ LOD of 0.001 ppm and one positive finding at 0.0112 ppm. The PDP data was used for the monitoring data based assessment and the market basket data was used for the NFS assessment.

Citrus, Other

Other citrus (limes, tangerine, tangelos, and citrons) were calculated from the PDP data for oranges, but using a maximum of 32% of the crop treated with chlorpyrifos as determined by BEAD. The resulting RDF for non-blended food forms had 10637 zeros, 1495 at 1/2LOD of 0.0021 and 1000 positive findings. An RDF for partially blended food forms had 1286 zeros, 461 at ½ weighted LOD of 0.0021 ppm and 144 positive findings.

Citrus Juices, Other

Other citrus juices (limes, tangerines) were translated from the orange juice data. Because juices are blended, no correction for percent crop treated is made, and the orange juice RDF is used directly. Because measurement were made directly in a juice, the juice processing factors were not used. However, these juices were also translated to juice concentrate. For this purpose the ratio of juice concentrate to juice processing factors was retained. For lime juice concentrate this ratio was 3.0 and for tangerine juice concentrate this factor was 3.2.

Lemons and Lemon Juice

Lemons were translated from the PDP data for oranges, but were adjusted to 43% crop treated. non-blended processed lemon food forms used the decomposited orange results. This yielded an RDF of 3305 at zero, 1493 at ½ LOD and 1000 positive findings, The partially blended food forms used the PDP data directly without decompositing. This yielded an RDF of 1078 samples at zero, 669 samples at the weighted ½ LOD of 0.0021 ppm, and 144 positive findings. Similarly, lemon juice was translated from the orange juice data, but with no correction for percent crop treated. Lemon juice concentrate was calculated from the lemon juice using the ratio of lemon to lemon juice concentrate processing factors in DEEM™ of 5.7.

Grapefruit

Grapefruits were also translated from the PDP data for oranges, but using 16% crop treated, as determined by BEAD. Once again, non-blended food forms of processed grapefruit used the

decomposited PDP data, while partially blended food forms used the PDP data directly. This led to a whole fruit non-blended RDF of 13,088 zeros, 1493 at ½ LOD of 0.0021 ppm and 1000 hits and a partially blended RDF of 1588 zeros, 159 at the weighted ½ LOD of 0.0021 ppm and 144 positive findings. Grapefruit juice was translated from orange juice without change and grapefruit juice concentrate was calculated from the grapefruit juice preserving the ratio of DEEM™ default factors for concentrate to juice of 3.93.

Onion

During the years 1992 - 1997 FDA analyzed 230 samples of dry bulb onions and had no positive findings. BEAD estimated that 19% of the onion crop is treated with chlorpyrifos. With no positive findings, onions needed no decompositing and the RDF file could be used directly for both non-blended and partially blended food forms. This yielded an RDF of 186 zeros and 44 samples at 1/2LOD of 0.00015 ppm.

Peaches - Fresh/Cooked

In the years 1994 to 1996 PDP analyzed 1087 samples of fresh peaches and had 130 positive findings. Because peach is a non-blended commodity these results were decomposited by the method of Allender. Samples were estimated to be composites of 21 peaches based upon a 5 lb sample and 106 g per average peach (*USDA Handbook Number 8, Composition of Foods, Raw, Processed, Prepared*.) Bead estimates that 17% of peach samples are treated with chlorpyrifos. The decompositing procedure projected 26 results above the tolerance. Therefore the distribution of results was truncated at the tolerance to 974 results. This yielded 974 positive findings, 6760 samples at zero and 410 samples at the weighted LOD of 0.0025 ppm.

Peaches - Canned

During 1997 PDP also analyzed 708 samples of canned peaches with no positive findings. As noted before, BEAD estimates that 17% of peaches are treated with chlorpyrifos. Although canned peaches are non-blended, no decomposition was needed or possible because there were no positive findings. From the BEAD estimate 119 samples were set at the weighted ½ LOD of 0.0025. The remainder of 589 samples were set at zero. These data were used for all processed food forms of peaches except peach juice.

Peaches - Blended Commodities

An average was calculated for blended peach commodities from the 1994 - 1996 PDP data (without decompositing) and using the estimate of a maximum of 17% of the crop treated. The data set contained a total of 1087 samples with 130 positive findings. An additional 55 samples were set to ½ LOD of 0.0025 ppm and the remaining 902 were set to zero. The average was 0.001128 ppm.

Nectarine

Nectarines were translated from the PDP data from fresh peaches. BEAD estimated 11% crop treated for nectarines. This yielded an RDF for decomposited nectarines of 11,505 zeros, 422 at ½ LOD of 0.0025 ppm and 1000 positive findings. Processed food forms of nectarines were translated from processed peaches. This yielded an RDF of 78 samples at ½ LOD of 0.0025 ppm and 630 zeros.

Plum

Plums were also translated from peach data. BEAD estimated 6% crop treated for plums. Processed food forms of plums were estimated from processed peaches. Fresh plums were estimated from the decomposited peaches as 23,700 zeros, 422 at ½ LOD of 0.0025 ppm and 1000 positive findings. The PDP data for peaches was used directly without decomposition for partially blended food forms to yield an RDF of 666 zeros and 42 At ½ LOD of 0.0025 ppm.

Peanut

During the years 1992 to 1997 FDA Surveillance Monitoring Program analyzed 102 samples of peanuts, with 6 positive findings that ranged up to 0.04 ppm. BEAD estimates that 15% of peanuts are treated with chlorpyrifos, however peanuts are considered to be a blended commodity. Therefore all non detects were calculated as ½ the LOD at 0.00015. This yielded an RDF of 96 samples at ½ LOD of 0.00015 ppm and 6 positive findings. Peanuts - butter was calculated from the FDA data on peanuts.

The registrant has submitted a market basket survey on peanut butter, but it was determined that DEEM™ accounts for a non-peanut portion of peanut butter and direct input of data for peanut butter may not produce a completely correct result. Therefore this survey was not used in the assessment based upon PDP and FDA survey data. It was used, however, for the assessment based upon the registrant's market basket survey. The RDF that was submitted contained 31 results at 1/2LOD of 0.001, and 169 positive findings. The positive findings ranged up to 0.021 ppm. For the NFS dietary exposure analysis, the NFS data for peanut butter were used directly (the DEEM default concentration factor was turned off.

The FDA TDS also reported detectable residues of chlorpyrifos for peanuts, dry roasted (food code 048) and peanut butter, smooth (food code 047). For dry roasted peanuts, 17 of the 18 market basket survey samples had detectable residues, the mean was 0.0045 ppm, and the range was 0.002 to 0.011 ppm. For peanut butter, 17 of the 18 market basket survey samples also had detectable residues, the mean was 0.0047 ppm, and the range was 0.003 to 0.007 ppm.

Peanut Oil

For peanut oil, the peanut RDF was used with a processing factor of 2.0. The Chlorpyrifos

Registration Standard described an adequate peanut processing study in which peanut nutmeat bearing chlorpyrifos residues at 0.03 ppm were processed into crude, refined, and pressed peanut oil which were found to contain 0.06 ppm, 0.05 ppm, and 0.07 ppm chlorpyrifos respectively (2X concentration for oil). (Knizner, S. Chlorpyrifos Anticipated Residues for DRES Acute Analysis, DP Barcode: D216468)

Fresh Pears, Whole

PDP analyzed single, whole fresh pears during 1998. These were individual pears, not composite samples. There were 160 samples with 3 positive findings at 0.006, 0.007, and 0.028 ppm and an LOD of 0.0044 ppm. Because these samples were of single whole fruits, decomposition was not needed. BEAD estimates that 23% of the pear crop is treated with chlorpyrifos. This yielded an RDF of 123 samples at zero, 34 at ½ of the weighted average LOD of 0.0022 ppm, and 3 positive findings. Note that this single serving data is still accepted only tentatively for exposure assessment by HED.

Composited Pears

During 1997 PDP also analyzed 708 composited samples of fresh pears with 13 positive findings up to 0.054 ppm. BEAD estimates that 23% of pears are treated with chlorpyrifos. These results are appropriate canned and frozen pears, which are partially blended, and do not need decompositing. To create an RDF, the 13 positive findings were used, 545 of the non-detects were calculated at zero, 150 of the non-detects were set at the weighted ½ LOD of 0.003. The remaining 545 were calculated as zero.

A point estimate for pear juice and dried pears was taken as the average of the findings for the composite pear RDF at 0.000965 ppm. A DEEM™ processing factor of 6.25 is used for dried pears. For pear juice the DEEM™ processing factor is 1.

Radish

During the years 1992 - 1997 FDA analyzed 118 samples of radishes and had 13 positive findings up to 0.099 ppm. BEAD estimates that 19% of all roots and tubers are treated with chlorpyrifos. Based on this estimate, an RDF was created with 96 zeros, 9 of the non detects set at the ½ LOD of 0.00015 ppm, and 13 positive findings.

Rutabagas and Turnips

All roots and tubers had the sample estimated 19% crop treated. The only tuber on which there was good data was sweet potato, so all roots and tubers, including rutabagas and turnips were translated from sweet potatoes. Because everything remained the same, the sweet potato RDF could be used without modification.

Strawberry

During the years 1992 to 1997 FDA analyzed 723 samples of strawberries with 8 positive findings up to 0.043 ppm. BEAD estimates that 12% of strawberries are treated with chlorpyrifos. Because strawberries are construed to be partially blended these results were used directly without decomposition. The RDF consisted of 636 zeros, 79 set at the weighted ½ LOD of 0.00015 PPM, and the 8 positive findings.

For strawberry juice, the fresh strawberry file was used to create an average point estimate of 0.00022 ppm. This was adjusted with the grape juice processing factor of 0.3.

Sunflower

An anticipated residue of 0.046 ppm for sunflower seed was taken from Knizner, S. Chlorpyrifos Anticipated Residues for DRES Acute Analysis, DP Barcode: D216468, 10/95. BEAD states that sunflower is 0% crop treated, so HED uses a conservative estimate that 1% of the crop is treated to yield a value of 0.00046 ppm.

Sunflower Seed Oil

Sunflower seed oil was taken from the sunflower seed anticipated residue and a processing factor of 1.0 from Knizner, S. Chlorpyrifos Anticipated Residues for DRES Acute Analysis, DP Barcode: D216468. Using 1% crop treated, this yields 0.00046 ppm.

Sweet Potato

During the years 1994-1997 PDP analyzed 1202 samples of sweet potatoes with 129 positive findings. Because sweet potatoes at non-blended these samples were decomposited by the method of Allender. Samples were calculated to be composited of 13 individual sweet potatoes based up an estimated weight of 180 g/sweet potato and five pound samples. BEAD estimates 19% of all root and tuber crops are treated with chlorpyrifos. The decomposition procedure projected 30 samples above tolerance. The distribution was truncated at tolerance, even though two of the results in the original data were also above tolerance. Combining this information with the decomposition yielded a projected 970 positive findings, 7321 samples at zero, and 747 samples at the weighted ½ LOD of 0.0029. For cooked and frozen food forms of sweet potatoes a partially blended RDF was created with 974 zeros, 99 at ½ the weighted average LOD of 0.0055 ppm and 129 positive findings.

Tomato

During the years 1996 and 1997 PDP analyzed a total of 881 tomato samples for chlorpyrifos with 109 positive findings (12%), up to 0.31 ppm. BEAD estimates that 3% of tomatoes are treated with chlorpyrifos. A total of 19 tomatoes were estimated to be composited into a single

sample based upon 5 lbs/sample and 123 g/tomato (*USDA Handbook 8, Composition of Foods, Raw, processed, Prepared*). Because tomatoes are non-blended these results were decomposited by the method of Allender to a projected 1000 positive findings. Eight of these positive finding were above the tolerance for tomatoes. Therefore these 8 were truncated from the distribution. This created an RDF of 7026 zeros and 992 projected positive findings. Because the proportion of positive findings exceeded the proportion of the crop that had been treated, none of the samples were set at ½ LOD. For cooked/frozen tomatoes, a partially blended RDF was created of 772 zeros and 109 positive findings.

To convert the tomato data to the processed commodities the factor 0.03 was used for juice and 0.1 was use for the paste, puree and catsup (Dodd, N., Chlorpyrifos on Tomatoes - Anticipated Residues, DP Barcode 183901, 9/28/93).

The registrant also submitted a market basket survey of 54 tomatoes, all collected in Florida. There were 17 positive findings (31%) up to 0.0565 ppm. Although samples in this market basket were composited (4 tomatoes were blended together), the results were not decomposited, but were used directly as composite samples. There were too few positive findings to allow reliable decomposition. This means that the same RDF was used for both whole tomatoes and partially blended tomatoes. The original RDF submitted by the registrant had compensated for analyzing composites of four by multiplying all values by four. The RDF used by HED, corrected from that submitted by the registrant, was 37 zeros and 17 positive findings at 1/4 the values used in the registrant's RDF.

FDA TDS data are also available for tomatoes (tomato, red, raw, food code 117). Eight of the 18 market basket surveys conducted from 1991 to 1997 had tomatoes with measurable residues. The mean value was 0.0036 ppm, minimum 0.001 ppm, and maximum 0.007 ppm.

Mushroom

The tolerance of 0.01 ppm and BEAD estimated 1% crop treated (Kiely, T. Chlorpyrifos in mushrooms 5/12/99) were used.

Sugar Cane

The tolerance of 0.01 ppm and an assumed 100% of the crop treated were used for sugar cane and for sugar cane molasses.

Table 10. Summary of Individual Fresh, Cooked and Canned and Frozen Commodities

Commodity	Tolerance (ppm)	% Crop Treated	Processing Factor	Sample Composition (NB, PB or B)	Source of Data for Assessment (PDP, FDA, etc)	Data Entered into Assessment
cranberries, fresh	1.0	60	N/A	PB	Ocean Spray data	RDF #1
cranberries, cooked/canned/frozen			DEEM default = 1	PB	from fresh cranberries	RDF #1
cranberry juice			grape juice factor 0.3	B	from fresh cranberries	0.2558 ppm
grapes, fresh	1.0	1	N/A	PB	PDP	RDF #2
grapes, cooked/canned/frozen			DEEM default 1	PB	from fresh grapes	RDF #2
grapes, juice			0.3 (previous EPA PF)	B	from fresh grapes	0.00272 ppm
dried grapes (raisins)		0.17	0.17 (previous EPA PF)	PB	from fresh grapes	0.00272 ppm
strawberries	0.2	12	N/A	PB	FDA	RDF #4
citron	1.0	32	N/A	NB	from fresh oranges	RDF #3
grapefruit, fresh peeled fruit	1.0	16	N/A	NB	from fresh oranges	RDF #5
grapefruit, cooked			DEEM default = 1	NB	from fresh oranges	RDF #5
grapefruit, canned/frozen			DEEM default = 1	PB	from fresh oranges	RDF #6
grapefruit juice			1.0 from OJ	B	from orange juice	RDF #12
kumquats	1.0	32	N/A	PB	from fresh oranges	RDF #7
lemons, fresh peeled fruit	1.0	43	N/A	NB	from fresh oranges	RDF #8
lemons, cooked			DEEM default = 1	NB	from fresh oranges	RDF #8
lemons, canned/frozen			DEEM default = 1	PB	from fresh oranges	RDF #9
lemon, peel, fresh or cooked			N/A	NB	from fresh oranges	RDF #8

Commodity	Tolerance (ppm)	% Crop Treated	Processing Factor	Sample Composition (NB, PB or B)	Source of Data for Assessment (PDP, FDA, etc)	Data Entered into Assessment
lemon, peel, canned/frozen			N/A	PB	from fresh oranges	RDF #9
lemons, juice			1.0 from OJ	B	from orange juice	RDF #12
limes, fresh peeled fruit and lime peel	1.0	32	N/A	NB	from fresh oranges	RDF #3
limes, juice			1.0 from OJ	B	from orange juice	RDF #12
oranges, fresh peeled fruit	1.0	54	N/A	NB	PDP, oranges for eating fresh	RDF #10
oranges, cooked		10	DEEM default = 1	NB	PDP, oranges for processing	RDF #64
oranges, canned/frozen		10	DEEM default = 1	PB	PDP, oranges for processing	RDF #11
orange peel, fresh		54, 10	N/A	NB	from fresh oranges	RDF #10
orange peel, cooked		54, 10	N/A	NB	from oranges for processing	RDF #64
orange peel, canned/frozen		54, 10	N/A	PB	from oranges for processing	RDF #11
orange juice		10	direct PDP	B	PDP	RDF #12
tangelos	1.0	32	N/A	NB	from fresh oranges	RDF #3
tangerines, fresh peeled fruit	1.0	32	N/A	NB	from fresh oranges	RDF #3
tangerines, canned/frozen			DEEM default = 1	PB	from oranges for processing	RDF #7
tangerine juice			1.0 from OJ	B	from orange juice	RDF #12
Almonds, fresh/cooked/dried/frozen	0.2	29	all FF 1.0	PB	Field Trial	RDF #13
brazil nuts, fresh/cooked	0.2	9	N/A	PB	from almonds and walnuts	RDF #14
cashews, fresh/cooked	0.2	9	all FF 1.0	PB	from almonds and walnuts	RDF #14
chestnuts, cooked	0.2	9	DEEM default = 1	PB	from almonds and walnuts	RDF #14

Commodity	Tolerance (ppm)	% Crop Treated	Processing Factor	Sample Composition (NB, PB or B)	Source of Data for Assessment (PDP, FDA, etc)	Data Entered into Assessment
filberts, fresh/cooked	0.2	9	all FF 1.0	PB	from almonds and walnuts	RDF #14
hickory nuts, fresh	0.2	9	N/A	PB	from almonds and walnuts	RDF #14
macadamia nuts, cooked	0.2	9	DEEM default = 1	PB	from almonds and walnuts	RDF #14
pecans, fresh/cooked	0.2	36	N/A	PB	from almonds and walnuts	RDF #15
walnuts, fresh/cooked	0.2	39	all FF 1.0	PB	Field Trial	RDF #16
butter nuts	0.2	9	N/A	PB	from almonds and walnuts	RDF #14
beechnuts	0.2	9	N/A	PB	from almonds and walnuts	RDF #14
apples, fresh	1.5 ppm	53	N/A	NB	PDP	RDF #17
apples, cooked			DEEM default = 1	NB	from fresh apples	RDF #17
apples, canned/frozen			DEEM default = 1	PB	from fresh apples	RDF #60
apples, dried			DEEM default = 8.0	B	from fresh apples	0.00656 ppm
apple juice			Direct Monitoring	B	PDP	RDF #18
pears, fresh	0.05	23	N/A	NB	PDP(single fruits analyzed)	RDF #19
pears, cooked			DEEM default = 1	NB	PDP	RDF #19
pears, canned/frozen			DEEM default = 1	PB	PDP	RDF #20
pears, dried			DEEM default =6.25	B	from the fresh pears C RDF #20	0.000965 ppm
cherries, fresh	1.0	24	N/A	PB	FDA, sweet cherries	RDF #21
cherries, cooked		14	DEEM default = 1	PB	from fresh, sweet cherries	RDF #21

Commodity	Tolerance (ppm)	% Crop Treated	Processing Factor	Sample Composition (NB, PB or B)	Source of Data for Assessment (PDP, FDA, etc)	Data Entered into Assessment
cherries, canned/frozen		14	DEEM default = 1	PB	from fresh, tart cherries	RDF #22
cherries, dried		14	DEEM default = 4.0	PB	from fresh, tart cherries	RDF #22
cherry juice		14	grape juice factor = 0.3	B	from fresh, tart cherries	0.00119 ppm
nectarines	0.05	11	N/A	NB	from fresh peaches	RDF #23
peaches, fresh	0.05	17	N/A	NB	PDP	RDF #24
peaches, cooked			DEEM default = 1	NB	PDP	RDF #24
peaches, canned/frozen			DEEM default = 1	PB	PDP	RDF #25
peaches, dried			DEEM default = 7.0	B	from fresh peaches	0.000825 ppm
plums, fresh	0.05	6	N/A	NB	from fresh peaches	RDF #26
plums, cooked			DEEM default = 1	NB	from fresh peaches	RDF #26
plums, canned/frozen			DEEM default = 1	PB	from fresh peaches	RDF #27
prunes (dried plums)			DEEM default = 5.0	PB	from fresh peaches	RDF #27
plum/prune juice			DEEM default = 1.4	B	from fresh peaches	0.000550 ppm
bananas, fresh peeled fruit	0.01	14 import	N/A	NB	PDP	RDF #28
bananas, cooked			DEEM default = 1	NB	from bananas	RDF #28
bananas, canned			DEEM default = 1	PB	from bananas	RDF #28

Commodity	Tolerance (ppm)	% Crop Treated	Processing Factor	Sample Composition (NB, PB or B)	Source of Data for Assessment (PDP, FDA, etc)	Data Entered into Assessment
bananas, dried			DEEM default = 3.9	B	from bananas	0.000423 ppm
figs	0.01	1	N/A	NB	tolerance x %CT	0.0001 ppm
plantain, fresh	0.01	14 import	N/A	NB	from bananas	RDF #28
plantains, cooked			DEEM default = 1	NB	from bananas	RDF #28
kiwi, fresh	2.0		N/A	NB	from FDA	RDF #29
kiwi, cooked			DEEM default = 1	NB	from fresh kiwi	RDF #29
kiwi, canned/frozen			DEEM default = 1	PB	from fresh kiwi	RDF #29
cucumbers, fresh	0.05	1	N/A	NB	FDA	RDF #30
cucumbers, cooked			DEEM default = 1	NB	from fresh cucumbers	RDF #30
cucumbers, canned/pickled			DEEM default = 1	PB	from fresh cucumbers	RDF #30
pumpkins, fresh	0.05	1	N/A	NB	from fresh cucumbers	RDF #31
pumpkins, cooked			DEEM default = 1	NB	from fresh cucumbers	RDF #31
pumpkins, canned	not a RAC		DEEM default = 1	PB	from fresh cucumbers	RDF #31
peppers, fresh sweet	1.0	3	N/A	NB	FDA	RDF #32
peppers, cooked/processed sweet	not a RAC		DEEM default = 1	PB	from bell peppers	RDF #32
peppers, fresh hot	1.0		N/A	NB	from bell peppers	RDF #32
peppers, hot, cooked			DEEM default = 1	NB	from bell peppers	RDF #32
peppers, hot, canned/frozen/ pickled			DEEM default = 1	PB	from bell peppers	RDF #32
peppers, other	1.0		N/A	NB	from bell peppers	RDF #32

Commodity	Tolerance (ppm)	% Crop Treated	Processing Factor	Sample Composition (NB, PB or B)	Source of Data for Assessment (PDP, FDA, etc)	Data Entered into Assessment
tomatoes, fresh	1.0	3	N/A	NB	PDP	RDF #33
tomatoes, whole cooked			DEEM default = 1	NB	from fresh tomatoes	RDF #33
tomatoes, whole canned/frozen			DEEM default = 1	PB	from fresh tomatoes	RDF #34
tomato juice			0.03 (prior EPA PF)	B	from fresh tomatoes	0.00407 ppm
tomato, puree			0.1 (prior EPA PF)	B	from fresh tomatoes	0.00407 ppm
tomato, paste			0.1 (prior EPA PF)	B	from fresh tomatoes	0.00407 ppm
tomato, catsup			0.1 (prior EPA PF)	B	from fresh tomatoes	0.00407 ppm
broccoli, fresh	1.0	51	N/A	NB	PDP	RDF #36
broccoli, cooked			DEEM default = 1	NB	from broccoli	RDF #36
broccoli, canned/frozen			DEEM default = 1	PB	from broccoli	RDF #36
Brussels sprout	1.0	100	N/A	PB	FDA	RDF #37
cabbage, fresh	1.0	23	N/A	NB	FDA	RDF #38
cabbage, cooked			DEEM default = 1	NB	from fresh cabbage	RDF #38
cabbage, canned/cured			DEEM default = 1	PB	from fresh cabbage	RDF #38
cauliflower, fresh	1.0	36	N/A	NB	FDA	RDF #39
cauliflower, cooked			DEEM default = 1	NB	from cauliflower	RDF #39
cauliflower, frozen			DEEM default = 1	NB	from cauliflower	RDF #39
collards, fresh	1.0	13	N/A	NB	FDA	RDF #40
collards, cooked			DEEM default = 1	NB	from collards	RDF #40
collards, canned/frozen			DEEM default = 1	PB	from collards	RDF #40
kale, fresh	1.0	1	N/A	NB	FDA	RDF #41

Commodity	Tolerance (ppm)	% Crop Treated	Processing Factor	Sample Composition (NB, PB or B)	Source of Data for Assessment (PDP, FDA, etc)	Data Entered into Assessment
kale, cooked			DEEM default = 1	NB	from kale	RDF #41
kale, canned			DEEM default = 1	PB	from kale	RDF #41
kohlrabi	1.0	1	N/A	NB	from collards	RDF #42
mustard greens	1.0	1	N/A	NB	from collards	RDF #43
turnip greens	0.3	19	N/A	PB	from collards	RDF #35
grape leaves		1	N/A	PB	grape tolerance	RDF #0.5
onions, dry bulb, fresh	0.5	19	N/A	NB	FDA	RDF #45
onions, dry bulb, cooked			DEEM default = 1	NB	from fresh onions	RDF #45
onions, dry bulb, canned/frozen			DEEM default = 1	PB	from fresh onions	RDF #45
onions, dried			DEEM default = 9.0	B	from fresh onions RDF	0.000028 ppm
radishes (roots)	2.0	19	N/A	PB	from sweet potatoes	RDF #46
radish greens		19	N/A	PB	from collards	RDF #35
rutabagas (roots)	0.5	19	N/A	NB	from sweet potatoes	RDF #44
rutabaga greens		19	N/A	NB	from collards	RDF #35
sweet potato, fresh	0.05	19	N/A	NB	PDP	RDF #44
sweet potato, cooked			DEEM default = 1	NB	from sweet potatoes	RDF #44
sweet potato, canned/frozen			DEEM default = 1	PB	from sweet potatoes	RDF #63
turnips (roots)	1.0	19	N/A	NB	from sweet potatoes	RDF #44
beans, dried	0.05	1	N/A	B	tolerance x %CT	0.0005 ppm
dried beans, cooked/processed			DEEM default = 1	B	tolerance x %CT	0.0005 ppm
beans, succulent	0.05	1	N/A	PB	PDP	RDF #48

Commodity	Tolerance (ppm)	% Crop Treated	Processing Factor	Sample Composition (NB, PB or B)	Source of Data for Assessment (PDP, FDA, etc)	Data Entered into Assessment
succulent beans, cooked/processed			DEEM default = 1	PB	PDP	RDF #48
succulent broad beans	0.05	1	N/A	NB	from green beans	RDF #48
sweet corn, fresh	0.1	13	N/A	NB	FDA	RDF #49
sweet corn, cooked			DEEM default = 1	NB	PDP	RDF #49
sweet corn, canned/frozen			DEEM default = 1	PB	PDP	RDF #50
dried peas	0.05	1	N/A	B	tolerance x %CT	0.0005 ppm
dried peas, cooked/processed			DEEM default = 1	B	tolerance x %CT	0.0005 ppm
sweet peas, fresh	0.05	1	N/A	PB	FDA	RDF #51
sweet peas, cooked			DEEM default = 1	PB	PDP	RDF #51
sweet peas, canned/frozen			DEEM default = 1	PB	PDP	RDF #51
lentils, cooked	0.05	1	N/A	B	from dried beans	0.0005
mung bean sprouts	0.05	1	N/A	N	from fresh green beans	0.0005
beans, unspecified	0.05	1	N/A	NB	from fresh green beans	RDF #48
soybean sprouts	0.3	1	DEEM default = 0.33	B	from soybean grain	0.000320
asparagus, fresh	0.3	12	N/A	NB	FDA	RDF #52
asparagus, cooked			DEEM default = 1	NB	from asparagus	RDF #52
asparagus, canned/frozen			DEEM default = 1	PB	from asparagus	RDF #52
mushrooms, fresh	0.1	1	N/A	PB	tolerance x %CT	0.001 ppm
mushrooms, cooked/processed			DEEM default = 1	PB	tolerance x %CT	0.001 ppm
corn grain	0.05	8	N/A	B	field trials	0.00088 ppm
corn grain, cooked/processed			DEEM default = 1	B	from corn grain	0.00088 ppm

Commodity	Tolerance (ppm)	% Crop Treated	Processing Factor	Sample Composition (NB, PB or B)	Source of Data for Assessment (PDP, FDA, etc)	Data Entered into Assessment
corn grain bran			DEEM default = 1	B	from corn grain	0.00088 ppm
corn grain sugar			0.05 (prior EPA PF)	B	from corn grain	0.00088 ppm
wheat grain	0.5	1	N/A	B	FDA	RDF #53
wheat grain, cooked/processed			DEEM default = 1	B	from wheat grain	RDF #53
wheat bran			DEEM default = 1	B	from wheat grain	RDF #53
wheat flour			0.145 (prior EPA PF)	B	PDP	RDF #53
wheat flour, cooked/processed			0.145 (prior EPA PF)	B	from wheat flour	RDF #53
sugar beets (roots)	1.0	10	N/A	B	from sweet potatoes	RDF #62
sugar cane	0.01			B		0.01 ppm
sugar cane molasses				B		0.01 ppm
corn oil			processing study 4.5	B	from corn grain	0.000880
cottonseed oil		6 % of RAC cotton	processing study 0.375	B	1995 AR	0.0072 ppm
peanut oil			processing study 2.0	B	1995 AR	RDF #58
sunflower oil			processing study 1.0	B	1995 AR	0.00046 ppm
soybean oil			processing study 0.14	B	1995 AR	0.00032 ppm
soybean, other		1		B	from soybeans	0.00032 ppm
soybeans (seeds), fresh	0.3	1	N/A	B	field trials	0.00032 ppm
soybean (seeds) cooked/processed			DEEM default = 1	B	from soybeans	0.00032 ppm
soybean flour, full fat			DEEM default = 1	B	from soybeans	0.00032 ppm

Commodity	Tolerance (ppm)	% Crop Treated	Processing Factor	Sample Composition (NB, PB or B)	Source of Data for Assessment (PDP, FDA, etc)	Data Entered into Assessment
soybean flour, low fat			DEEM default = 1	B	from soybeans	0.00032 ppm
soybean flour, defatted			DEEM = 1 default	B	from soybeans	0.00032 ppm
peppermint oil		27% of RAC mint	processing study 10	B	field trial	2.16 ppm
spearmint oil		27% of RAC mint	processing study 10	B	field trial	2.16 ppm
grapes, wine			DEEM default = 1	B	from grapes	0.00272 ppm
gelatin			DEEM default = 1	B	from beef	0.00108 ppm
milk, solids	0.01		N/A	NB	PDP	RDF#55
milk, fat	0.25		N/A	NB	PDP	RDF#55
milk, sugar (lactose)	0.01		N/A	NB	PDP	RDF#55
beef products and byproducts	0.05		N/A	NB	registrant's market basket for ground beef	RDF #56
beef fat	0.3		N/A	NB	from beef	RDF #56
goat products and by products	0.05		N/A	NB	from beef	RDF #56
goat fat	0.3		N/A	NB	from beef	RDF #56
horsemeat	0.05		N/A	NB	from beef	RDF #56
sheep products and byproducts	0.05		N/A	NB	from beef	RDF #56
sheep fat	0.3		N/A	NB	from beef	RDF #56
pork products and byproducts	0.05		N/A	NB	from beef	RDF #57
pork fat	0.2		N/A	NB	registrants market basket for pork sausage	RDF #57
poultry products and byproducts	0.1		N/A	NB	AR	0.000001 ppm

Commodity	Tolerance (ppm)	% Crop Treated	Processing Factor	Sample Composition (NB, PB or B)	Source of Data for Assessment (PDP, FDA, etc)	Data Entered into Assessment
poultry fat			N/A	NB	AR	0.000013 ppm
chicken products and byproducts	0.05		N/A	NB	AR	0.000001 ppm
chicken fat			N/A	NB	AR	0.000013 ppm
eggs, whole	0.01		N/A	NB	AR	0.000002 ppm
egg whites			N/A	B	AR	0.000002 ppm
egg yolks			N/A	B	AR	0.000002 ppm
apple juice concentrate			DEEM default = 3.0	B	from apple juice	RDF #18
banana juice			DEEM default = 1	B	from bananas	0.000423 ppm
savoy cabbage	1.0		N/A	NB	from cabbage	RDF #38
corn grain sugar			0.05 (prior EPA PF)	B	from corn grain	0.00088 ppm
cranberry juice concentrate			DEEM ratio = 1	B	from fresh cranberries	0.2558 ppm
grape juice concentrate			DEEM ratio = 0.9	B	from fresh grapes	0.00272 ppm
milk based water	0.01		N/A	NB	PDP	RDF #55
peach juice			DEEM default	B	from fresh peach	0.000825 ppm
peanuts, butter			DEEM default = 1.89	PB	from peanuts	RDF #58
pear juice			DEEM default	B	from fresh pears	0.000965 ppm
succulent back eyed peas	0.05	1	N/A	B	from green peas	RDF #51
Japanese radishes	2.0	19	N/A	NB	from sweet potato	RDF #46
snowpeas	0.05	1	N/A	PB	from succulent beans	RDF #48

Commodity	Tolerance (ppm)	% Crop Treated	Processing Factor	Sample Composition (NB, PB or B)	Source of Data for Assessment (PDP, FDA, etc)	Data Entered into Assessment
strawberry juice			grape juice factor = 0.3	B	from strawberry	0.00022 ppm
sunflower seeds	0.25	1	N/A	PB		0.00046 ppm
sweet potato leaves		19	N/A	NB	from collards	RDF #35
tangerine juice concentrate			DEEM ratio = 3.2	B	from orange juice	RDF #12
tomatoes, dried			14.3	B	from tomatoes	0.00407 ppm
walnut oil			DEEM default = 1	B	from almonds and walnuts	0.0195
wheat germ oil			DEEM default = 1	B	from wheat grain	RDF #53
grapefruit juice concentrate			DEEM ratio = 3.93	B	from orange juice	RDF #12
lemon juice concentrate			DEEM ratio = 5.7	B	from orange juice	RDF #12
lime juice concentrate			DEEM ratio = 3.0	B	from orange juice	RDF #12
grapefruit peel			N/A	PB	from fresh oranges	RDF #5
Chinese broccoli	1.0	51	N/A	NB	from broccoli	RDF #36
bok choi	1.0		N/A	NB	FDA	RDF #59
green plantains	0.01	14 import	N/A	NB	from bananas	RDF #28
plantains, dried			DEEM default	NB	from bananas	RDF #28
soy protein isolate			DEEM default = 1	B	from soybeans	0.00032 ppm
soy protein isolate, further cooked/processed			DEEM default =1	B	from soybeans	0.00032
radishes oriental	2.0	19	N/A	NB	from sweet potatoes	RDF #46
peanuts, hulled	0.2	15	N/A	B	FDA	RDF #58
peanuts, cooked/frozen			DEEM default	B	from peanuts	RDF #58

Results/Discussion

For the US population and all subgroups the refined acute exposure estimates at the 99.9th percentile were less than 100% of the aPAD. All subpopulations were below HED's level of concern.

Because of the limited and dated NFS data (relative to PDP and FDA monitoring data), the Agency believes that exposure assessment presented in Table 11, which incorporated PDP and FDA monitoring data to the greatest extent possible, and NFS data only for beef and pork, represents the most reliable acute dietary exposure estimate.

Table 11. Agency Acute Dietary Exposure and Risk Estimates for Various Sub-Populations.

POPULATION	95% EXPOSURE [a]		99% EXPOSURE		99.9% EXPOSURE	
	mg/kg/day	percent of aPAD [b]	mg/kg/day	percent of aPAD	mg/kg/day	Percent of aPAD
U. S. Population	0.000096	5.66	0.000188	11.04	0.000667	39.24
All Infants	0.000188	11.03	0.000376	22.12	0.001294	76.13
Nursing Infants	0.000107	6.30	0.000403	23.69	0.001283	75.44
Non-nursing Infants	0.000200	11.75	0.000360	21.19	0.001275	75.02
Children 1 - 6 years old	0.000183	10.79	0.000354	20.80	0.001541	90.63
Children 7 - 12 years old	0.000110	6.45	0.000227	13.33	0.001056	62.10
Females 13+/preg./not nsg	0.000059	3.46	0.000202	11.86	0.000515	30.31
Females 13+/nursing	0.000090	5.28	0.000172	10.12	0.000646	37.99
Females 13 - 19	0.000058	3.44	0.000107	6.31	0.000427	25.10
Females 20+	0.000045	2.67	0.000105	6.19	0.000498	29.31
Females 13 - 50 years old	0.000051	3.02	0.000110	6.45	0.000465	27.38
Males 13 - 19 years old	0.000066	3.87	0.000116	6.80	0.000432	25.40
Males 20+	0.000048	2.82	0.000105	6.15	0.000460	27.08
Seniors	0.000044	2.59	0.000105	6.19	0.000525	30.90

[a] Exposure assessment included PDP and FDA monitoring data and NFS data for beef and pork only.
[b]The acute population adjusted dose (aPAD) is 0.0017 mg/kg/day for all sub-populations.

Table 14 summarizes the exposure and risk assessment using NFS data to the greatest extent possible. Dietary risk estimates at the 99.9th percentile exposure using all of the available NFS data in addition to PDP and FDA monitoring data are less than 100% of the aPAD, ranging from 14% of the aPAD for females 13+ years old to 68% of the aPAD for nursing infants. However, for reasons discussed above, the Agency has less confidence in this exposure assessment.

Table 14. Exposure and Risk Estimates for Various Sub-Populations Using Complete NFS Data

POPULATION	95% EXPOSURE		99% EXPOSURE		99.9% EXPOSURE	
	mgs/kg/day	percent of aPAD	mgs/kg/day	percent of aPAD	mgs/kg/day	Percent of aPAD
U. S. Population	0.000098	5.75	0.000176	10.37	0.000431	25.34
All Infants	0.000190	11.16	0.000327	19.23	0.000809	47.57
Nursing Infants	0.000076	4.49	0.000181	10.66	0.001161	68.30
Non-nursing Infants	0.000216	12.68	0.000353	20.78	0.000787	46.28
Children 1 - 6 years old	0.000186	10.96	0.000285	16.79	0.000870	51.18
Children 7 - 12 years old	0.000115	6.77	0.000189	11.11	0.000549	32.27
Females 13+/preg./not nsg	0.000063	3.74	0.000173	10.18	0.000274	16.15
Females 13+/nursing	0.000080	4.70	0.000138	8.14	0.000431	25.34
Females 13 - 19	0.000063	3.70	0.000110	6.49	0.000241	14.18
Females 20+	0.000048	2.79	0.000091	5.33	0.000308	18.09
Females 13 - 50 years old	0.000054	3.16	0.000096	5.67	0.000282	16.60
Males 13 - 19 years old	0.000072	4.26	0.000111	6.54	0.000290	17.08
Males 20+	0.000051	2.98	0.000092	5.44	0.000317	18.65
Seniors	0.000045	2.66	0.000089	5.26	0.000312	18.36

Consumption Information

The acute risk assessment module of version 6.77 of DEEM™ was used for this risk assessment. Human consumption of the various commodities was estimated from the 1989 - 1992 USDA *Continuing Surveys of Food Intake for Individuals*.

List of Attachments

Attachment 1: FDA Total Diet Study, Summary of Chlorpyrifos Residues Found, Market Basket Surveys From 1991-3rd Quarter to 1997-1st Quarter
Attachment 2: Acute Residue Information 2.a. Agency Assessment 2.b. NFS Assessment
Attachment 3: Acute DEEM™ Analysis 3.a. Agency Assessment 3.b. NFS Assessment

cc:RCABRF; RRB2RF;D. Soderberg; S. Knizner;
7509c:RCAB:DSoderberg:CM-2:Room821D:308-4137:Chlorpyrifos

Attachment 1: FDA Total Diet Study, Summary of Chlorpyrifos Residues Found, Market Basket Surveys From 1991-3rd Quarter to 1997-1st Quarter - A total of 18 market basket surveys were conducted over this time period.

chlorpyrifos

		Food Level Found, ppm			
Residue Item# Description	**n**	**Mean**	**Min**	**Max**	
007 choc. milk shake, fast-food	1	0.002	0.002	0.002	
018 pork chop, pan-cooked	1	0.002	0.002	0.002	
022 lamb chop, pan-cooked	1	0.006	0.006	0.006	
034 fish sticks, frozen, heated	2	0.001	0.0009	0.001	
047 peanut butter, smooth	17	0.0047	0.003	0.007	
048 peanuts, dry roasted	17	0.0045	0.002	0.011	
051 oatmeal, cooked	4	0.0063	0.002	0.014	
057 popcorn, popped in oil	2	0.01	0.002	0.018	
058 white bread	4	0.0011	0.0005	0.002	
059 white roll	5	0.0014	0.0009	0.003	
060 cornbread, homemade	2	0.0004	0.0002	0.0005	
061 biscuit, baked	3	0.0009	0.0007	0.001	
062 whole wheat bread	9	0.0014	0.0006	0.002	
063 tortilla, flour	4	0.0007	0.0005	0.001	
064 rye bread	6	0.001	0.001	0.001	
065 blueberry muffin	2	0.0055	0.001	0.01	
066 saltine crackers	5	0.001	0.0006	0.002	
067 corn chips	1	0.003	0.003	0.003	
068 pancake from mix	3	0.0008	0.0005	0.001	
069 egg noodles, boiled	6	0.002	0.001	0.005	
070 macaroni, boiled	2	0.001	0.001	0.001	
072 fruit-flavored cereal	5	0.0014	0.001	0.002	
073 shredded wheat cereal	6	0.0014	0.0006	0.004	
074 raisin bran cereal	4	0.0015	0.0009	0.002	
076 granola cereal	8	0.0013	0.0003	0.002	
077 oat ring cereal	4	0.0685	0.001	0.128	
078 apple, red, raw	14	0.012	0.001	0.103	
079 orange, raw	7	0.002	0.0009	0.003	
083 peach, raw	9	0.0056	0.0007	0.018	
084 applesauce, bottled	3	0.0008	0.0007	0.001	
085 pear, raw	1	0.001	0.001	0.001	
087 fruit cocktail, canned		1	0.001	0.001	0.001
088 grapes, seedless, raw	5	0.0115	0.0007	0.053	
089 cantaloupe, raw	1	0.001	0.001	0.001	
091 plums, raw	9	0.0015	0.0004	0.004	
094 sweet cherries, raw	2	0.002	0.0009	0.003	
095 raisins, dried	4	0.0013	0.001	0.002	
096 prunes, dried	3	0.001	0.001	0.001	
098 orange juice, from conc.	2	0.001	0.001	0.001	
107 spinach, boiled	10	0.0019	0.0009	0.004	
108 collards, boiled	3	0.0033	0.001	0.007	
111 coleslaw with dressing	1	0.0004	0.0004	0.0004	
113 broccoli, boiled	5	0.0035	0.0006	0.011	
115 asparagus, boiled	1	0.001	0.001	0.001	
117 tomato, red, raw	8	0.0036	0.001	0.007	
125 green pepper, raw	5	0.0154	0.001	0.041	

Residue Item# Description	n	Food Level Found, ppm Mean	Min	Max	
126 winter squash, baked		1	0.002	0.002	0.002
132 radish, raw	3	0.004	0.003	0.005	
135 mashed potatoes, flakes	1	0.001	0.001	0.001	
138 potato chips		1	0.001	0.001	0.001
139 scalloped potatoes	1	0.001	0.001	0.001	
146 macaroni and cheese, box	1	0.0007	0.0007	0.0007	
147 hamburger, fast-food		4	0.0011	0.0006	0.002
148 meatloaf, homemade		4	0.0009	0.0007	0.001
149 spaghetti, canned	1	0.001	0.001	0.001	
151 lasagna with meat	3	0.0008	0.0006	0.001	
152 chicken potpie, frozen	1	0.0006	0.0006	0.0006	
157 vegetable beef soup, canned	1	0.001	0.001	0.001	
160 white sauce, homemade	1	0.001	0.001	0.001	
173 tomato catsup	1	0.001	0.001	0.001	
178 chocolate cake and icing	5	0.0011	0.0007	0.002	
182 sweet roll or Danish	6	0.0016	0.0007	0.004	
183 chocolate chip cookies	2	0.0013	0.0006	0.002	
185 apple pie	1	0.002	0.002	0.002	
187 milk chocolate candy bar	1	0.003	0.003	0.003	
225 applesauce, strained/junior	15	0.0041	0.001	0.01	
226 peaches, strained/junior	6	0.0012	0.001	0.002	
227 pears, strained/junior	2	0.001	0.001	0.001	
233 fruit dessert/pudding, strained/junior	5	0.0034	0.001	0.008	
241 chicken nuggets, fast-food	1	0.001	0.001	0.001	
247 mixed nuts, no peanuts	2	0.002	0.001	0.003	
248 cracked wheat bread	6	0.0015	0.0009	0.003	
249 bagel, plain	4	0.0013	0.001	0.002	
250 English muffin, toasted	1	0.001	0.001	0.001	
251 graham crackers	4	0.0007	0.0004	0.001	
253 apricot, raw	3	0.0033	0.001	0.006	
258 French fries, fast-food	4	0.0011	0.0007	0.002	
263 Brussels sprouts, boiled	15	0.0152	0.001	0.148	
266 turnip, boiled	9	0.0459	0.003	0.126	
269 beef stroganoff	4	0.0011	0.0005	0.002	
270 green peppers, stuffed	4	0.0055	0.002	0.013	
272 tuna noodle casserole	4	0.001	0.0006	0.002	
274 turkey, frozen meal	2	0.0006	0.0005	0.0006	
275 cheeseburger, fast-food	6	0.0008	0.0006	0.001	
276 fish sandwich, fast-food	7	0.0014	0.0007	0.003	
277 frankfurter, fast-food		6	0.001	0.0006	0.002
278 egg/cheese/ham, fast-food	1	0.001	0.001	0.001	
279 taco or tostada, carry-out	8	0.0016	0.0001	0.005	
280 cheese pizza, carry-out	13	0.0013	0.0006	0.004	
281 pepperoni pizza, carry-out	12	0.0015	0.0005	0.005	
282 beef chow mein, carry-out	7	0.0019	0.0006	0.003	
290 cake doughnuts with icing	9	0.002	0.0005	0.003	
291 brownies, commercial	1	0.0009	0.0009	0.0009	
292 sugar cookies, commercial	3	0.0008	0.0004	0.001	
293 suckers, any flavor	1	0.002	0.002	0.002	
294 pretzels, hard, salted	6	0.001	0.0006	0.002	
295 chocolate syrup	1	0.0006	0.0006	0.0006	
297 sweet cucumber pickles	6	0.0043	0.001	0.015	

Residue Item# Description	n	Food Level Found, ppm Mean	Min	Max
299 black olives	17	0.0022	0.0006	0.006
301 brown gravy, homemade	1	0.001	0.001	0.001
304 olive or safflower oil	1	0.001	0.001	0.001
312 rice cereal, strained/junior	11	0.0013	0.0006	0.003
317 teething biscuits	3	0.0017	0.001	0.003
Total	468			

Attachment 2.a. Agency Acute Dietary Exposure Analysis

U.S. Environmental Protection Agency Ver. 6.78
DEEM ACUTE analysis for CHLORPYRIFOS (1989-92 data)
Residue file: 059101r.R96 Adjustment factor #2 NOT used.
Analysis Date: 09-30-1999/21:46:55 Residue file dated: 09-30-1999/18:17:40/8
Acute Reference Dose (aRfD) = 0.001700 mg/kg body-wt/day
MC iterations = 1000 MC list in residue file MC seed = 10
Run Comment: EPA analysis; de-composited PDP/FDA (FT)

Summary calculations:

	95th Percentile		99th Percentile		99.9th Percentile	
	Exposure	% aRfD	Exposure	% aRfD	Exposure	% aRfD
U.S. pop - all seasons:	0.000096	5.66	0.000188	11.04	0.000667	39.24
All infants (<1 year):	0.000188	11.03	0.000376	22.12	0.001294	76.13
Nursing infants (<1 year):	0.000107	6.30	0.000403	23.69	0.001283	75.44
Non-nursing infants (<1 yr):	0.000200	11.75	0.000360	21.19	0.001275	75.02
Children (1-6 years):	0.000183	10.79	0.000354	20.80	0.001541	90.63
Children (7-12 years):	0.000110	6.45	0.000227	13.33	0.001056	62.10
Females (13+/preg/not nsg):	0.000059	3.46	0.000202	11.86	0.000515	30.31
Females (13+/nursing):	0.000090	5.28	0.000172	10.12	0.000646	37.99
Females (13-19 yrs/np/nn):	0.000058	3.44	0.000107	6.31	0.000427	25.10
Females (20+ years/np/nn):	0.000045	2.67	0.000105	6.19	0.000498	29.31
Females (13-50 years):	0.000051	3.02	0.000110	6.45	0.000465	27.38
Males (13-19 years):	0.000066	3.87	0.000116	6.80	0.000432	25.40
Males (20+ years):	0.000048	2.82	0.000105	6.15	0.000460	27.08
Seniors (55+):	0.000044	2.59	0.000105	6.19	0.000525	30.90

Attachment 2.b. NFS Acute Dietary Exposure Assessment

U.S. Environmental Protection Agency Ver. 6.78
DEEM ACUTE analysis for CHLORPYRIFOS (1989-92 data)
Residue file: 059101r(RMB).R96 Adjustment factor #2 NOT used.
Analysis Date: 10-01-1999/21:01:38 Residue file dated: 09-30-1999/18:31:23/8
Acute Reference Dose (aRfD) = 0.001700 mg/kg body-wt/day
MC iterations = 1000 MC list in residue file MC seed = 10
Run Comment: EPA analysis; de-composited PDP/FDA (FT)

Summary calculations:

	95th Percentile		99th Percentile		99.9th Percentile	
	Exposure	% aRfD	Exposure	% aRfD	Exposure	% aRfD
U.S. pop - all seasons:	0.000098	5.75	0.000176	10.37	0.000431	25.34
All infants (<1 year):	0.000190	11.16	0.000327	19.23	0.000809	47.57
Nursing infants (<1 year):	0.000076	4.49	0.000181	10.66	0.001161	68.30
Non-nursing infants (<1 yr):	0.000216	12.68	0.000353	20.78	0.000787	46.28
Children (1-6 years):	0.000186	10.96	0.000285	16.79	0.000870	51.18
Children (7-12 years):	0.000115	6.77	0.000189	11.11	0.000549	32.27
Females (13+/preg/not nsg):	0.000063	3.74	0.000173	10.18	0.000274	16.15
Females (13+/nursing):	0.000080	4.70	0.000138	8.14	0.000431	25.34
Females (13-19 yrs/np/nn):	0.000063	3.70	0.000110	6.49	0.000241	14.18
Females (20+ years/np/nn):	0.000048	2.79	0.000091	5.33	0.000308	18.09
Females (13-50 years):	0.000054	3.16	0.000096	5.67	0.000282	16.60
Males (13-19 years):	0.000072	4.26	0.000111	6.54	0.000290	17.08
Males (20+ years):	0.000051	2.98	0.000092	5.44	0.000317	18.65
Seniors (55+):	0.000045	2.66	0.000089	5.26	0.000312	18.36

```
"Chlorpyrifos "
 0
NEWMCN,         0.0017
NOEL,           0               0               0
09-30-1999/18:17:40
 63
CRANBERRY.RDF
Cpygrape.rdf
recitrusoth.rdf
Straw.rdf
regrapefruit.rdf
CPYGrapeFruitNBC.RDF
CPYCitrusNBC.RDF
relemon.rdf
CPYlemonNBC.RDF
reorange.rdf
cpyorangeprocnbc.rdf
Ojuice.RDF
cpyalmon.RDF
cpynuts.RDF
cpypecan.RDF
cpywalnu.RDF
reapple.rdf
Aj.rdf
cpypearsingleNB.rdf
cpyPearNB-C.rdf
Cpychers.rdf
Cpychert.rdf
renecttrunc.rdf
repeachtrunc.rdf
peachcan.rdf
replumtrunc.rdf
cpyplumnb-c.rdf
CPYBANAN.rdf
cpykiwi.rdf
Cpycucu.rdf
Cpypump.rdf
Cpybellp.rdf
retomatotrunc.rdf
cpytomatonb-c.rdf
cpyrootg.rdf
Cpybroccoli.rdf
CpyBruss.rdf
cpycabbg.rdf
cpycaull.rdf
cpycolrd.rdf
cpykale.rdf
cpykohlr.rdf
cpymustr.rdf
resweetpottrun.RDF
cpyonion.RDF
radish.rdf
cpygarlic.RDF
CPYGRBEN.rdf
cpyswcornf.rdf
cpyswcrp.rdf
cpysweetpeas.rdf
cpyasfda.RDF
Cpywhpdp.rdf
grbeanproc.rdf
CPYMILK.rdf
```

```
cpyGB.rdf
CPYprksa.rdf
PEANUT.rdf
cpybokch.rdf
cpyapplenb-c.rdf
cpysbeet.RDF
cpysugarbtnb-c.rdf
cpyswpotnb-c.rdf
-1  "EPA analysis; de-composited PDP/FDA (FT)"
 999
 8    01010AA,O,   0.001     1    1         1         6   "Cranberries", ""
     11      Uncooked,              0.001      1    1          1        ""
     12      Cooked: NFS,           0.001      1    1          1        ""
     13      Baked,                 0.001      1    1          1        ""
     18      Dried,                 0.001      1    1          1        ""
     31      Canned: NFS,           0.001      1    1          1        ""
     42      Frozen: Cooked,        0.001      1    1          1        ""
 9    01010JA,O,   0.0209    0    0.3       0.6       3   "Cranberries-juice", ""
     11      Uncooked,              0.0209     0    0.3        0.6      ""
     12      Cooked: NFS,           0.0209     0    0.3        0.6      ""
     31      Canned: NFS,           0.0209     0    0.3        0.6      ""
 13   01014AA,O,   0.001     2    1         1         4   "Grapes", ""
     11      Uncooked,              0.001      2    1          1        ""
     12      Cooked: NFS,           0.001      2    1          1        ""
     31      Canned: NFS,           0.001      2    1          1        ""
     41      Frozen: NFS,           0.001      2    1          1        ""
 14   01014DA,O,   0.001     2    0.17      1         6   "Grapes-raisins", ""
     11      Uncooked,              0.001      2    0.17       1        ""
     12      Cooked: NFS,           0.001      2    0.17       1        ""
     13      Baked,                 0.001      2    0.17       1        ""
     14      Boiled,                0.001      2    0.17       1        ""
     18      Dried,                 0.001      2    0.17       1        ""
     42      Frozen: Cooked,        0.001      2    0.17       1        ""
 15   01014JA,O,   0.00272   0    0.3       1         6   "Grapes-juice", ""
     11      Uncooked,              0.00272    0    0.3        1        ""
     12      Cooked: NFS,           0.00272    0    0.3        1        ""
     14      Boiled,                0.00272    0    0.3        1        ""
     31      Canned: NFS,           0.00272    0    0.3        1        ""
     34      Canned: Boiled,        0.00272    0    0.3        1        ""
     41      Frozen: NFS,           0.00272    0    0.3        1        ""
 17   01016AA,O,   0.001     4    1         1         7   "Strawberries", ""
     11      Uncooked,              0.001      4    1          1        ""
     12      Cooked: NFS,           0.001      4    1          1        ""
     13      Baked,                 0.001      4    1          1        ""
     14      Boiled,                0.001      4    1          1        ""
     31      Canned: NFS,           0.001      4    1          1        ""
     34      Canned: Boiled,        0.001      4    1          1        ""
     41      Frozen: NFS,           0.001      4    1          1        ""
 20   02001AA,10,  0.001     3    1         1         2   "Citrus citron", ""
     13      Baked,                 0.001      3    1          1        ""
     14      Boiled,                0.001      3    1          1        ""
 22   02002AB,10,  0.001     5    1         1         3   "Grapefruit-peeled fruit", ""
     11      Uncooked,              0.001      5    1          1        ""
     12      Cooked: NFS,           0.001      5    1          1        ""
     31      Canned: NFS,           0.001      6    1          1        ""
 23   02002JA,10,  0.001     12   1         1         2   "Grapefruit-juice", ""
     11      Uncooked,              0.001      12   1          1        ""
     31      Canned: NFS,           0.001      12   1          1        ""
 24   02003AA,10,  0.001     7    1         1         0   "Kumquats", ""
 26   02004AB,10,  0.001     8    1         1         3   "Lemons-peeled fruit", ""
     11      Uncooked,              0.001      8    1          1        ""
     12      Cooked: NFS,           0.001      8    1          1        ""
     31      Canned: NFS,           0.001      9    1          1        ""
```

```
27   02004HA,10,  0.001     8    1         1          6   "Lemons-peel", ""
     11      Uncooked,              0.001      8    1          1         ""
     13      Baked,                 0.001      8    1          1         ""
     14      Boiled,                0.001      8    1          1         ""
     31      Canned: NFS,           0.001      9    1          1         ""
     34      Canned: Boiled,        0.001      9    1          1         ""
     41      Frozen: NFS,           0.001      9    1          1         ""
28   02004JA,10,  0.001     12   1         1          10  "Lemons-juice", ""
     11      Uncooked,              0.001      12   1          1         ""
     12      Cooked: NFS,           0.001      12   1          1         ""
     13      Baked,                 0.001      12   1          1         ""
     14      Boiled,                0.001      12   1          1         ""
     15      Fried,                 0.001      12   1          1         ""
     31      Canned: NFS,           0.001      12   1          1         ""
     32      Canned: Cooked,        0.001      12   1          1         ""
     34      Canned: Boiled,        0.001      12   1          1         ""
     41      Frozen: NFS,           0.001      12   1          1         ""
     42      Frozen: Cooked,        0.001      12   1          1         ""
30   02005AB,10,  0.001     3    3         1          1   "Limes-peeled fruit", ""
     11      Uncooked,              0.001      3    3          1         ""
31   02005HA,10,  0.001     3    3         1          2   "Limes-peel", ""
     13      Baked,                 0.001      3    3          1         ""
     14      Boiled,                0.001      3    3          1         ""
32   02005JA,10,  0.001     12   1         1          5   "Limes-juice", ""
     11      Uncooked,              0.001      12   1          1         ""
     31      Canned: NFS,           0.001      12   1          1         ""
     32      Canned: Cooked,        0.001      12   1          1         ""
     34      Canned: Boiled,        0.001      12   1          1         ""
     41      Frozen: NFS,           0.001      12   1          1         ""
33   02006JC,10,  0.001     12   3.72      1          0   "Oranges-juice-concentrate", ""
34   02006AB,10,  0.001     10   1         1          3   "Oranges-peeled fruit", ""
     11      Uncooked,              0.001      10   1          1         ""
     12      Cooked: NFS,           0.001      10   1          1         ""
     31      Canned: NFS,           0.001      11   1          1         ""
35   02006HA,10,  0.001     10   1         1          4   "Oranges-peel", ""
     11      Uncooked,              0.001      10   1          1         ""
     12      Cooked: NFS,           0.001      10   1          1         ""
     31      Canned: NFS,           0.001      11   1          1         ""
     41      Frozen: NFS,           0.001      11   1          1         ""
36   02006JA,10,  0.001     12   1         1          4   "Oranges-juice", ""
     11      Uncooked,              0.001      12   1          1         ""
     12      Cooked: NFS,           0.001      12   1          1         ""
     31      Canned: NFS,           0.001      12   1          1         ""
     41      Frozen: NFS,           0.001      12   1          1         ""
37   02007AA,10,  0.001     3    1         1          0   "Tangelos", ""
38   02008AA,10,  0.001     3    1         1          3   "Tangerines", ""
     11      Uncooked,              0.001      3    1          1         ""
     31      Canned: NFS,           0.001      7    1          1         ""
     41      Frozen: NFS,           0.001      7    1          1         ""
39   02008JA,10,  0.001     12   1         1          0   "Tangerines-juice", ""
40   03001AA,14,  0.001     13   1         1          6   "Almonds", ""
     11      Uncooked,              0.001      13   1          1         ""
     12      Cooked: NFS,           0.001      13   1          1         ""
     13      Baked,                 0.001      13   1          1         ""
     14      Boiled,                0.001      13   1          1         ""
     18      Dried,                 0.001      13   1          1         ""
     41      Frozen: NFS,           0.001      13   1          1         ""
41   03002AA,14,  0.001     14   1         1          4   "Brazil nuts", ""
     11      Uncooked,              0.001      14   1          1         ""
     13      Baked,                 0.001      14   1          1         ""
     14      Boiled,                0.001      14   1          1         ""
     16      Pasteurized,           0.001      14   1          1         ""
42   03003AA,14,  0.001     14   1         1          3   "Cashews", ""
```

```
    11      Uncooked,             0.001      14   1          1        ""
    13      Baked,                0.001      14   1          1        ""
    14      Boiled,               0.001      14   1          1        ""
 43   03004AA,14,  0.001     14   1          1          2   "Chestnuts", ""
    12      Cooked: NFS,          0.001      14   1          1        ""
    13      Baked,                0.001      14   1          1        ""
 44   03005AA,14,  0.001     14   1          1          3   "Filberts (hazelnuts)", ""
    11      Uncooked,             0.001      14   1          1        ""
    13      Baked,                0.001      14   1          1        ""
    14      Boiled,               0.001      14   1          1        ""
 45   03006AA,14,  0.001     14   1          1          1   "Hickory nuts", ""
    11      Uncooked,             0.001      14   1          1        ""
 46   03007AA,14,  0.001     14   1          1          1   "Macadamia nuts (bush nuts)", ""
    13      Baked,                0.001      14   1          1        ""
 47   03008AA,14,  0.001     15   1          1          3   "Pecans", ""
    11      Uncooked,             0.001      15   1          1        ""
    13      Baked,                0.001      15   1          1        ""
    14      Boiled,               0.001      15   1          1        ""
 48   03009AA,14,  0.001     16   1          1          3   "Walnuts", ""
    11      Uncooked,             0.001      16   1          1        ""
    12      Cooked: NFS,          0.001      16   1          1        ""
    13      Baked,                0.001      16   1          1        ""
 49   03010AA,14,  0.001     14   1          1          0   "Butter nuts", ""
 51   03013AA,14,  0.001     14   1          1          0   "Beech-nuts", ""
 52   04001AA,11,  0.001     17   1          1          11  "Apples", ""
    11      Uncooked,             0.001      17   1          1        ""
    12      Cooked: NFS,          0.001      17   1          1        ""
    13      Baked,                0.001      17   1          1        ""
    14      Boiled,               0.001      17   1          1        ""
    15      Fried,                0.001      17   1          1        ""
    18      Dried,                0.001      60   1          1        ""
    31      Canned: NFS,          0.001      60   1          1        ""
    32      Canned: Cooked,       0.001      60   1          1        ""
    33      Canned: Baked,        0.001      60   1          1        ""
    34      Canned: Boiled,       0.001      60   1          1        ""
    42      Frozen: Cooked,       0.001      60   1          1        ""
 53   04001DA,11,  0.00656   0    8          1          4   "Apples-dried", "point est average of
RDF"
    13      Baked,                0.00656    0    8          1        "point est"
    14      Boiled,               0.00656    0    8          1        "point est"
    18      Dried,                0.00656    0    8          1        "point est"
    42      Frozen: Cooked,       0.00656    0    8          1        "point est"
 54   04001JA,11,  0.001     18   1          1          5   "Apples-juice/cider", ""
    11      Uncooked,             0.001      18   1          1        ""
    12      Cooked: NFS,          0.001      18   1          1        ""
    14      Boiled,               0.001      18   1          1        ""
    31      Canned: NFS,          0.001      18   1          1        ""
    41      Frozen: NFS,          0.001      18   1          1        ""
 56   04003AA,11,  0.001     19   1          1          5   "Pears", ""
    11      Uncooked,             0.001      19   1          1        ""
    12      Cooked: NFS,          0.001      19   1          1        ""
    13      Baked,                0.001      19   1          1        ""
    14      Boiled,               0.001      19   1          1        ""
    31      Canned: NFS,          0.001      20   1          1        ""
 57   04003DA,11,  0.000965  0    6.25       1          3   "Pears-dried", ""
    13      Baked,                0.000965   0    6.25       1        ""
    14      Boiled,               0.000965   0    6.25       1        ""
    18      Dried,                0.000965   0    6.25       1        ""
 61   05002AA,12,  0.001     21   1          1          7   "Cherries", "sweet"
    11      Uncooked,             0.001      21   1          1        "sweet"
    12      Cooked: NFS,          0.001      21   1          1        "sweet"
    13      Baked,                0.001      21   1          1        "sweet"
    14      Boiled,               0.001      21   1          1        "sweet"
```

```
     31      Canned: NFS,          0.001      22   1          1        "tart"
     33      Canned: Baked,        0.001      22   1          1        "tart"
     41      Frozen: NFS,          0.001      22   1          1        "tart"
 62   05002DA,12,  0.001     22   4          1          0   "Cherries-dried", "tart"
 63   05002JA,12,  0.00119   0    0.3        1          4   "Cherries-juice", "tart"
     13      Baked,                0.00119    0    0.3        1        "tart"
     14      Boiled,               0.00119    0    0.3        1        "tart"
     31      Canned: NFS,          0.00119    0    0.3        1        "tart"
     41      Frozen: NFS,          0.00119    0    0.3        1        "tart"
 64   05003AA,12,  0.001     23   1          1          1   "Nectarines", ""
     11      Uncooked,             0.001      23   1          1        ""
 65   05004AA,12,  0.001     24   1          1          6   "Peaches", ""
     11      Uncooked,             0.001      24   1          1        ""
     12      Cooked: NFS,          0.001      24   1          1        ""
     13      Baked,                0.001      24   1          1        ""
     14      Boiled,               0.001      24   1          1        ""
     31      Canned: NFS,          0.001      25   1          1        ""
     41      Frozen: NFS,          0.001      25   1          1        ""
 66   05004DA,12,  0.001228  0    7          1          2   "Peaches-dried", ""
     14      Boiled,               0.001228   0    7          1        ""
     18      Dried,                0.001228   0    7          1        ""
 67   05005AA,12,  0.001     26   1          1          5   "Plums (damsons)", ""
     11      Uncooked,             0.001      26   1          1        ""
     12      Cooked: NFS,          0.001      26   1          1        ""
     31      Canned: NFS,          0.001      27   1          1        ""
     42      Frozen: Cooked,       0.001      27   1          1        ""
     51      Cured: NFS (smoked/p, 0.001      27   1          1        ""
 68   05005DA,12,  0.001     27   5          1          4   "Plums-prunes (dried)", ""
     13      Baked,                0.001      27   5          1        ""
     14      Boiled,               0.001      27   5          1        ""
     18      Dried,                0.001      27   5          1        ""
     31      Canned: NFS,          0.001      27   5          1        ""
 69   05005JA,12,  0.00055   0    1.4        1          2   "Plums/prune-juice", "average cald from
fresh peach"
     11      Uncooked,             0.00055    0    1.4        1        "average calcd from fresh
peach"
     31      Canned: NFS,          0.00055    0    1.4        1        "average calcd from fresh
peach"
 72   06002AB,O,   0.001     28   1          1          7   "Bananas", ""
     11      Uncooked,             0.001      28   1          1        ""
     12      Cooked: NFS,          0.001      28   1          1        ""
     13      Baked,                0.001      28   1          1        ""
     14      Boiled,               0.001      28   1          1        ""
     15      Fried,                0.001      28   1          1        ""
     31      Canned: NFS,          0.001      28   1          1        ""
     32      Canned: Cooked,       0.001      28   1          1        ""
 73   06002DA,O,   0.000423  0    3.9        1          4   "Bananas-dried", ""
     13      Baked,                0.000423   0    3.9        1        ""
     15      Fried,                0.000423   0    3.9        1        ""
     18      Dried,                0.000423   0    3.9        1        ""
     32      Canned: Cooked,       0.000423   0    3.9        1        ""
 78   06005AA,O,   0.0001    0    1          0.01       2   "Figs", ""
     11      Uncooked,             0.0001     0    1          0.01     ""
     13      Baked,                0.0001     0    1          0.01     ""
 94   06016AA,O,   0.001     28   1          1          3   "Plantains-ripe", ""
     11      Uncooked,             0.001      28   1          1        ""
     14      Boiled,               0.001      28   1          1        ""
     15      Fried,                0.001      28   1          1        ""
 97   06018AA,O,   0.001     29   1          1          2   "Kiwi fruit", ""
     11      Uncooked,             0.001      29   1          1        ""
     31      Canned: NFS,          0.001      29   1          1        ""
 148  10010AA,9B,  0.001     30   1          1          3   "Cucumbers", ""
     11      Uncooked,             0.001      30   1          1        ""
```

```
    34      Canned: Boiled,       0.001      30   1          1        ""
    60      Canned: Cured,        0.001      30   1          1        ""
149  10011AA,9B,  0.001     31   1          1          6   "Pumpkin", ""
    12      Cooked: NFS,          0.001      31   1          1        ""
    13      Baked,                0.001      31   1          1        ""
    14      Boiled,               0.001      31   1          1        ""
    15      Fried,                0.001      31   1          1        ""
    33      Canned: Baked,        0.001      31   1          1        ""
    34      Canned: Boiled,       0.001      31   1          1        ""
155  11003AA,8,   0.001     32   1          1          9   "Peppers-sweet(garden)", ""
    11      Uncooked,             0.001      32   1          1        ""
    12      Cooked: NFS,          0.001      32   1          1        ""
    13      Baked,                0.001      32   1          1        ""
    14      Boiled,               0.001      32   1          1        ""
    31      Canned: NFS,          0.001      32   1          1        ""
    32      Canned: Cooked,       0.001      32   1          1        ""
    34      Canned: Boiled,       0.001      32   1          1        ""
    42      Frozen: Cooked,       0.001      32   1          1        ""
    51      Cured: NFS (smoked/p, 0.001      32   1          1        ""
156  11003AB,8,   0.001     32   1          1          13  "Peppers-chilli incl jalapeno", ""
    11      Uncooked,             0.001      32   1          1        ""
    12      Cooked: NFS,          0.001      32   1          1        ""
    13      Baked,                0.001      32   1          1        ""
    14      Boiled,               0.001      32   1          1        ""
    15      Fried,                0.001      32   1          1        ""
    31      Canned: NFS,          0.001      32   1          1        ""
    32      Canned: Cooked,       0.001      32   1          1        ""
    33      Canned: Baked,        0.001      32   1          1        ""
    34      Canned: Boiled,       0.001      32   1          1        ""
    42      Frozen: Cooked,       0.001      32   1          1        ""
    51      Cured: NFS (smoked/p, 0.001      32   1          1        ""
    52      Cured: Cooked(smokd/, 0.001      32   1          1        ""
    60      Canned: Cured,        0.001      32   1          1        ""
157  11003AD,8,   0.001     32   1          1          1   "Peppers-other", ""
    11      Uncooked,             0.001      32   1          1        ""
159  11005AA,8,   0.001     33   1          1          10  "Tomatoes-whole", ""
    11      Uncooked,             0.001      33   1          1        ""
    12      Cooked: NFS,          0.001      33   1          1        ""
    13      Baked,                0.001      33   1          1        ""
    14      Boiled,               0.001      33   1          1        ""
    15      Fried,                0.001      33   1          1        ""
    31      Canned: NFS,          0.001      34   1          1        ""
    32      Canned: Cooked,       0.001      34   1          1        ""
    33      Canned: Baked,        0.001      34   1          1        ""
    34      Canned: Boiled,       0.001      34   1          1        ""
    42      Frozen: Cooked,       0.001      34   1          1        ""
160  11005JA,8,   0.00407   0    0.03       1          4   "Tomatoes-juice", ""
    31      Canned: NFS,          0.00407    0    0.03       1        ""
    32      Canned: Cooked,       0.00407    0    0.03       1        ""
    34      Canned: Boiled,       0.00407    0    0.03       1        ""
    42      Frozen: Cooked,       0.00407    0    0.03       1        ""
161  11005RA,8,   0.00407   0    0.1        1          7   "Tomatoes-puree", ""
    12      Cooked: NFS,          0.00407    0    0.1        1        ""
    14      Boiled,               0.00407    0    0.1        1        ""
    31      Canned: NFS,          0.00407    0    0.1        1        ""
    32      Canned: Cooked,       0.00407    0    0.1        1        ""
    33      Canned: Baked,        0.00407    0    0.1        1        ""
    34      Canned: Boiled,       0.00407    0    0.1        1        ""
    42      Frozen: Cooked,       0.00407    0    0.1        1        ""
162  11005TA,8,   0.00407   0    0.1        1          6   "Tomatoes-paste", ""
    14      Boiled,               0.00407    0    0.1        1        ""
    31      Canned: NFS,          0.00407    0    0.1        1        ""
    32      Canned: Cooked,       0.00407    0    0.1        1        ""
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    33      Canned: Baked,          0.00407    0    0.1        1        ""
    34      Canned: Boiled,         0.00407    0    0.1        1        ""
    42      Frozen: Cooked,         0.00407    0    0.1        1        ""
163  11005UA,8,   0.00407   0    2.5        1          1   "Tomatoes-catsup", ""
    34      Canned: Boiled,         0.00407    0    2.5        1        ""
168  13005AA,5A,  0.001     36   1          1          8   "Broccoli", ""
    11      Uncooked,               0.001      36   1          1        ""
    12      Cooked: NFS,            0.001      36   1          1        ""
    13      Baked,                  0.001      36   1          1        ""
    14      Boiled,                 0.001      36   1          1        ""
    15      Fried,                  0.001      36   1          1        ""
    32      Canned: Cooked,         0.001      36   1          1        ""
    42      Frozen: Cooked,         0.001      36   1          1        ""
    44      Frozen: Boiled,         0.001      36   1          1        ""
169  13006AA,5A,  0.001     37   1          1          2   "Brussels sprouts", ""
    14      Boiled,                 0.001      37   1          1        ""
    42      Frozen: Cooked,         0.001      37   1          1        ""
170  13007AA,5A,  0.001     38   1          1          8   "Cabbage-green and red", ""
    11      Uncooked,               0.001      38   1          1        ""
    12      Cooked: NFS,            0.001      38   1          1        ""
    13      Baked,                  0.001      38   1          1        ""
    14      Boiled,                 0.001      38   1          1        ""
    15      Fried,                  0.001      38   1          1        ""
    31      Canned: NFS,            0.001      38   1          1        ""
    32      Canned: Cooked,         0.001      38   1          1        ""
    51      Cured: NFS (smoked/p,   0.001      38   1          1        ""
171  13008AA,5A,  0.001     39   1          1          5   "Cauliflower", ""
    11      Uncooked,               0.001      39   1          1        ""
    12      Cooked: NFS,            0.001      39   1          1        ""
    14      Boiled,                 0.001      39   1          1        ""
    15      Fried,                  0.001      39   1          1        ""
    42      Frozen: Cooked,         0.001      39   1          1        ""
172  13009AA,5B,  0.001     40   1          1          3   "Collards", ""
    14      Boiled,                 0.001      40   1          1        ""
    32      Canned: Cooked,         0.001      40   1          1        ""
    42      Frozen: Cooked,         0.001      40   1          1        ""
174  13011AA,5B,  0.001     41   1          1          3   "Kale", ""
    12      Cooked: NFS,            0.001      41   1          1        ""
    14      Boiled,                 0.001      41   1          1        ""
    32      Canned: Cooked,         0.001      41   1          1        ""
175  13012AA,5A,  0.001     42   1          1          1   "Kohlrabi", ""
    14      Boiled,                 0.001      42   1          1        ""
183  13021AA,5B,  0.001     43   1          1          1   "Mustard greens", ""
    14      Boiled,                 0.001      43   1          1        ""
188  13026AA,2,   0.001     35   1          1          3   "Turnips-tops", ""
    14      Boiled,                 0.001      35   1          1        ""
    32      Canned: Cooked,         0.001      35   1          1        ""
    44      Frozen: Boiled,         0.001      35   1          1        ""
195  13049AA,O,   0.5       0    1          1          1   "Grapes-leaves", "used tolerance"
    14      Boiled,                 0.5        0    1          1        "used tolerance"
205  14011AA,3,   0.001     45   1          1          12  "Onions-dry-bulb (cipollini)", ""
    11      Uncooked,               0.001      45   1          1        ""
    12      Cooked: NFS,            0.001      45   1          1        ""
    13      Baked,                  0.001      45   1          1        ""
    14      Boiled,                 0.001      45   1          1        ""
    15      Fried,                  0.001      45   1          1        ""
    31      Canned: NFS,            0.001      45   1          1        ""
    32      Canned: Cooked,         0.001      45   1          1        ""
    34      Canned: Boiled,         0.001      45   1          1        ""
    42      Frozen: Cooked,         0.001      45   1          1        ""
    43      Frozen: Baked,          0.001      45   1          1        ""
    44      Frozen: Boiled,         0.001      45   1          1        ""
    60      Canned: Cured,          0.001      45   1          1        ""
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 206  14011DA,3,   0.000028  0    9         1         8   "Onions-dehydrated or dried", "point
calc"
     12      Cooked: NFS,          0.000028   0    9         1        "point calc"
     13      Baked,                0.000028   0    9         1        "point calc"
     14      Boiled,               0.000028   0    9         1        "point calc"
     15      Fried,                0.000028   0    9         1        "point calc"
     31      Canned: NFS,          0.000028   0    9         1        "point calc"
     32      Canned: Cooked,       0.000028   0    9         1        "point calc"
     34      Canned: Boiled,       0.000028   0    9         1        "point calc"
     42      Frozen: Cooked,       0.000028   0    9         1        "point calc"
 212  14014AA,1AB, 0.001     46   1         1         2   "Radishes-roots", ""
     11      Uncooked,             0.001      46   1         1        ""
     12      Cooked: NFS,          0.001      46   1         1        ""
 213  14014AB,2,   0.001     35   1         1         0   "Radishes-tops", ""
 214  14015AA,1AB, 0.001     44   1         1         0   "Rutabagas-roots", ""
 215  14015AB,2,   0.001     35   1         1         1   "Rutabagas-tops", ""
     12      Cooked: NFS,          0.001      35   1         1        ""
 218  14018AA,1CD, 0.001     44   1         1         6   "Sweet potatoes (incl yams)", ""
     12      Cooked: NFS,          0.001      44   1         1        ""
     13      Baked,                0.001      44   1         1        ""
     14      Boiled,               0.001      44   1         1        ""
     15      Fried,                0.001      44   1         1        ""
     32      Canned: Cooked,       0.001      63   1         1        ""
     34      Canned: Boiled,       0.001      63   1         1        ""
 219  14019AA,1AB, 0.001     44   1         1         3   "Turnips-roots", ""
     11      Uncooked,             0.001      44   1         1        ""
     12      Cooked: NFS,          0.001      44   1         1        ""
     14      Boiled,               0.001      44   1         1        ""
 227  15001AA,6C,  0.0005    0    1         0.01      1   "Beans-dry-great northern",
"toleranceX%CT"
     32      Canned: Cooked,       0.0005     0    1         0.01     "toleranceX%CT"
 228  15001AB,6C,  0.0005    0    1         0.01      6   "Beans-dry-kidney", ""
     12      Cooked: NFS,          0.0005     0    1         0.01     ""
     13      Baked,                0.0005     0    1         0.01     ""
     14      Boiled,               0.0005     0    1         0.01     ""
     32      Canned: Cooked,       0.0005     0    1         0.01     ""
     34      Canned: Boiled,       0.0005     0    1         0.01     ""
     42      Frozen: Cooked,       0.0005     0    1         0.01     ""
 229  15001AC,6C,  0.0005    0    1         0.01      2   "Beans-dry-lima", ""
     14      Boiled,               0.0005     0    1         0.01     ""
     32      Canned: Cooked,       0.0005     0    1         0.01     ""
 230  15001AD,6C,  0.0005    0    1         0.01      2   "Beans-dry-navy (pea)", ""
     32      Canned: Cooked,       0.0005     0    1         0.01     ""
     34      Canned: Boiled,       0.0005     0    1         0.01     ""
 231  15001AE,6C,  0.0005    0    1         0.01      5   "Beans-dry-other", ""
     12      Cooked: NFS,          0.0005     0    1         0.01     ""
     13      Baked,                0.0005     0    1         0.01     ""
     14      Boiled,               0.0005     0    1         0.01     ""
     15      Fried,                0.0005     0    1         0.01     ""
     34      Canned: Boiled,       0.0005     0    1         0.01     ""
 232  15001AF,6C,  0.0005    0    1         0.01      6   "Beans-dry-pinto", ""
     12      Cooked: NFS,          0.0005     0    1         0.01     ""
     13      Baked,                0.0005     0    1         0.01     ""
     14      Boiled,               0.0005     0    1         0.01     ""
     15      Fried,                0.0005     0    1         0.01     ""
     32      Canned: Cooked,       0.0005     0    1         0.01     ""
     42      Frozen: Cooked,       0.0005     0    1         0.01     ""
 233  15002AA,6B,  0.001     48   1         1         6   "Beans-succulent-lima", ""
     11      Uncooked,             0.001      48   1         1        ""
     12      Cooked: NFS,          0.001      48   1         1        ""
     14      Boiled,               0.001      48   1         1        ""
     32      Canned: Cooked,       0.001      54   1         1        ""
     42      Frozen: Cooked,       0.001      54   1         1        ""
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    44      Frozen: Boiled,       0.001      54   1          1        ""
234  15003AA,6A,  0.001     48   1          1          9   "Beans-succulent-green", ""
    11      Uncooked,             0.001      48   1          1        ""
    12      Cooked: NFS,          0.001      48   1          1        ""
    14      Boiled,               0.001      48   1          1        ""
    31      Canned: NFS,          0.001      54   1          1        ""
    32      Canned: Cooked,       0.001      54   1          1        ""
    34      Canned: Boiled,       0.001      54   1          1        ""
    42      Frozen: Cooked,       0.001      54   1          1        ""
    44      Frozen: Boiled,       0.001      54   1          1        ""
    51      Cured: NFS (smoked/p, 0.001      54   1          1        ""
235  15003AB,6A,  0.001     54   1          1          1   "Beans-succulent-other", ""
    34      Canned: Boiled,       0.001      54   1          1        ""
236  15003AC,6A,  0.001     48   1          1          3   "Beans-succulent-yellow/wax", ""
    14      Boiled,               0.001      48   1          1        ""
    32      Canned: Cooked,       0.001      54   1          1        ""
    42      Frozen: Cooked,       0.001      54   1          1        ""
238  15005AA,15,  0.001     49   1          1          8   "Corn/sweet", "fresh"
    11      Uncooked,             0.001      49   1          1        "fresh"
    12      Cooked: NFS,          0.001      49   1          1        "fresh"
    13      Baked,                0.001      49   1          1        "fresh"
    14      Boiled,               0.001      49   1          1        "fresh"
    32      Canned: Cooked,       0.001      50   1          1        "processed"
    34      Canned: Boiled,       0.001      50   1          1        "processed"
    35      Canned: Fried,        0.001      50   1          1        "processed"
    42      Frozen: Cooked,       0.001      50   1          1        "processed"
240  15007AA,6C,  0.0005    0    1          0.01       5   "Peas (garden)-dry", "toleranceX%CT"
    12      Cooked: NFS,          0.0005     0    1          0.01     "toleranceX%CT"
    14      Boiled,               0.0005     0    1          0.01     "toleranceX%CT"
    31      Canned: NFS,          0.0005     0    1          0.01     "toleranceX%CT"
    32      Canned: Cooked,       0.0005     0    1          0.01     "toleranceX%CT"
    34      Canned: Boiled,       0.0005     0    1          0.01     "toleranceX%CT"
241  15009AA,6AB, 0.001     51   1          1          11  "Peas (garden)-green", ""
    11      Uncooked,             0.001      51   1          1        ""
    12      Cooked: NFS,          0.001      51   1          1        ""
    13      Baked,                0.001      51   1          1        ""
    14      Boiled,               0.001      51   1          1        ""
    15      Fried,                0.001      51   1          1        ""
    31      Canned: NFS,          0.001      51   1          1        ""
    32      Canned: Cooked,       0.001      51   1          1        ""
    34      Canned: Boiled,       0.001      51   1          1        ""
    42      Frozen: Cooked,       0.001      51   1          1        ""
    44      Frozen: Boiled,       0.001      51   1          1        ""
    45      Frozen: Fried,        0.001      51   1          1        ""
243  15011AB,6C,  0.001     48   1          1          1   "Lentils", ""
    14      Boiled,               0.0005     0    1          0.01     "toleranceX%CT"
244  15013AA,6C,  0.0005    0    1          0.01       4   "Mung beans (sprouts)", "toleranceX%CT"
    11      Uncooked,             0.0005     0    1          0.01     "toleranceX%CT"
    12      Cooked: NFS,          0.0005     0    1          0.01     "toleranceX%CT"
    14      Boiled,               0.0005     0    1          0.01     "toleranceX%CT"
    15      Fried,                0.0005     0    1          0.01     "toleranceX%CT"
249  15022AA,6C,  0.0005    0    1          0.01       1   "Beans-dry-broadbeans", "toleranceX%CT"
    14      Boiled,               0.0005     0    1          0.01     "toleranceX%CT"
250  15022AB,6B,  0.001     48   1          1          0   "Beans-succulent-broadbeans", ""
251  15023AA,6C,  0.0005    0    1          0.01       0   "Beans-dry-pigeon beans",
"toleranceX%CT"
253  15027AA,6,   0.001     48   1          1          0   "Beans-unspecified", "toleranceX%CT"
255  15029AA,6A,  0.00032   0    0.33       0.01       1   "Soybeans-sprouted seeds", ""
    14      Boiled,               0.00032    0    0.33       0.01     ""
256  15030AA,6C,  0.0005    0    1          0.01       0   "Beans-dry-hyacinth", ""
257  15030AB,6,   0.001     48   1          1          0   "Beans-succulent-hyacinth", ""
258  15031AA,6C,  0.0005    0    1          0.01       1   "Beans-dry-blackeye peas/cowpea", ""
    14      Boiled,               0.0005     0    1          0.01     ""
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259  15032AA,6C,  0.0005    0    1         0.01      4   "Beans-dry-garbanzo/chick pea", ""
    12      Cooked: NFS,          0.0005     0    1         0.01     ""
    14      Boiled,               0.0005     0    1         0.01     ""
    15      Fried,                0.0005     0    1         0.01     ""
    32      Canned: Cooked,       0.0005     0    1         0.01     ""
260  16002AA,O,   0.001     52   1         1         4   "Asparagus", ""
    11      Uncooked,             0.001      52   1         1        ""
    14      Boiled,               0.001      52   1         1        ""
    32      Canned: Cooked,       0.001      52   1         1        ""
    42      Frozen: Cooked,       0.001      52   1         1        ""
261  16003AA,O,   0.001     0    1         0.01      10  "Mushrooms", "1%CTXtolerance"
    11      Uncooked,             0.001      0    1         0.01     "1%CTXtolerance"
    12      Cooked: NFS,          0.001      0    1         0.01     "1%CTXtolerance"
    13      Baked,                0.001      0    1         0.01     "1%CTXtolerance"
    14      Boiled,               0.001      0    1         0.01     "1%CTXtolerance"
    15      Fried,                0.001      0    1         0.01     "1%CTXtolerance"
    31      Canned: NFS,          0.001      0    1         0.01     "1%CTXtolerance"
    32      Canned: Cooked,       0.001      0    1         0.01     "1%CTXtolerance"
    33      Canned: Baked,        0.001      0    1         0.01     "1%CTXtolerance"
    34      Canned: Boiled,       0.001      0    1         0.01     "1%CTXtolerance"
    42      Frozen: Cooked,       0.001      0    1         0.01     "1%CTXtolerance"
266  24002EA,15,  0.00088   0    1         0.08      14  "Corn grain-endosperm", ""
    11      Uncooked,             0.00088    0    1         0.08     ""
    12      Cooked: NFS,          0.00088    0    1         0.08     ""
    13      Baked,                0.00088    0    1         0.08     ""
    14      Boiled,               0.00088    0    1         0.08     ""
    15      Fried,                0.00088    0    1         0.08     ""
    31      Canned: NFS,          0.00088    0    1         0.08     ""
    32      Canned: Cooked,       0.00088    0    1         0.08     ""
    33      Canned: Baked,        0.00088    0    1         0.08     ""
    34      Canned: Boiled,       0.00088    0    1         0.08     ""
    41      Frozen: NFS,          0.00088    0    1         0.08     ""
    42      Frozen: Cooked,       0.00088    0    1         0.08     ""
    43      Frozen: Baked,        0.00088    0    1         0.08     ""
    45      Frozen: Fried,        0.00088    0    1         0.08     ""
    99      Alcohol/Fermented/Di, 0.00088    0    1         0.08     ""
267  24002HA,15,  0.00088   0    1         0.08      5   "Corn grain-bran", ""
    12      Cooked: NFS,          0.00088    0    1         0.08     ""
    13      Baked,                0.00088    0    1         0.08     ""
    14      Boiled,               0.00088    0    1         0.08     ""
    15      Fried,                0.00088    0    1         0.08     ""
    31      Canned: NFS,          0.00088    0    1         0.08     ""
268  24002SA,15,  0.00088   0    0.05      0.08      1   "Corn grain/sugar/hfcs", ""
    98      Refined,              0.00088    0    0.05      0.08     ""
276  24007AA,15,  0.001     53   1         1         4   "Wheat-rough", ""
    11      Uncooked,             0.001      53   1         1        ""
    12      Cooked: NFS,          0.001      53   1         1        ""
    13      Baked,                0.001      53   1         1        ""
    14      Boiled,               0.001      53   1         1        ""
277  24007GA,15,  0.001     53   1         1         3   "Wheat-germ", "wheat rough file"
    12      Cooked: NFS,          0.001      53   1         1        "wheat rough file"
    13      Baked,                0.001      53   1         1        "wheat rough file"
    14      Boiled,               0.001      53   1         1        "wheat rough file"
278  24007HA,15,  0.001     53   1         1         3   "Wheat-bran", "wheat rough file"
    11      Uncooked,             0.001      53   1         1        "wheat rough file"
    12      Cooked: NFS,          0.001      53   1         1        "wheat rough file"
    13      Baked,                0.001      53   1         1        "wheat rough file"
279  24007WA,15,  0.001     53   0.145     1         14  "Wheat-flour", "wheat rough file"
    11      Uncooked,             0.001      53   0.145     1        "wheat rough file"
    12      Cooked: NFS,          0.001      53   0.145     1        "wheat rough file"
    13      Baked,                0.001      53   0.145     1        "wheat rough file"
    14      Boiled,               0.001      53   0.145     1        "wheat rough file"
    15      Fried,                0.001      53   0.145     1        "wheat rough file"
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     31      Canned: NFS,          0.001      53   0.145      1        "wheat rough file"
     32      Canned: Cooked,       0.001      53   0.145      1        "wheat rough file"
     33      Canned: Baked,        0.001      53   0.145      1        "wheat rough file"
     34      Canned: Boiled,       0.001      53   0.145      1        "wheat rough file"
     41      Frozen: NFS,          0.001      53   0.145      1        "wheat rough file"
     42      Frozen: Cooked,       0.001      53   0.145      1        "wheat rough file"
     43      Frozen: Baked,        0.001      53   0.145      1        "wheat rough file"
     45      Frozen: Fried,        0.001      53   0.145      1        "wheat rough file"
     52      Cured: Cooked(smokd/, 0.001      53   0.145      1        "wheat rough file"
 282  25002SA,1A,  0.001     62   1          1          1   "Sugar-beet", "NBC"
     98      Refined,              0.001      62   1          1        "NBC"
 283  25003SA,O,   0.01      0    1          1          1   "Sugar-cane", "toleranceX100%CT"
     98      Refined,              0.01       0    1          1        "toleranceX100%CT"
 284  25003SB,O,   0.01      0    1          1          1   "Sugar-cane/molasses",
"toleranceX100%CT"
     13      Baked,                0.01       0    1          1        "toleranceX100%CT"
 287  26011AA,6C,  0.0005    0    1          0.01       1   "Guar beans", ""
     13      Baked,                0.0005     0    1          0.01     ""
 289  27002OA,15,  0.00088   0    4.5        1          1   "Corn grain-oil", "toleranceX%CT"
     98      Refined,              0.00088    0    4.5        1        "toleranceX%CT"
 290  27003OA,O,   0.0072    0    0.375      0.06       1   "Cottonseed-oil", "field trial 0.12 ppm
x 6% CT"
     98      Refined,              0.0072     0    0.375      0.06     "field trial 0.12 ppm x 6%
CT"
 293  27007OA,O,   0.001     58   2          1          1   "Peanuts-oil", ""
     98      Refined,              0.001      58   2          1        ""
 297  27010OA,6A,  0.00032   0    0.14       1          1   "Soybeans-oil", "1995 AR x 1% CT"
     98      Refined,              0.00032    0    0.14       1        "1995 AR x 1% CT"
 298  27011OA,O,   0.00046   0    1          1          1   "Sunflower-oil", "95AR x 1% CT, PF = 1"
     98      Refined,              0.00046    0    1          1        "95AR x 1% CT, PF = 1"
 303  15023AA,6A,  0.00032   0    1          1          0   "Soybean-other", ""
 304  28023AB,6A,  0.00032   0    1          1          5   "Soybeans-mature seeds dry", ""
     12      Cooked: NFS,          0.00032    0    1          1        ""
     13      Baked,                0.00032    0    1          1        ""
     14      Boiled,               0.00032    0    1          1        ""
     15      Fried,                0.00032    0    1          1        ""
     41      Frozen: NFS,          0.00032    0    1          1        ""
 305  28023WA,6A,  0.00032   0    1          1          5   "Soybeans-flour (full fat)", ""
     12      Cooked: NFS,          0.00032    0    1          1        ""
     13      Baked,                0.00032    0    1          1        ""
     14      Boiled,               0.00032    0    1          1        ""
     34      Canned: Boiled,       0.00032    0    1          1        ""
     42      Frozen: Cooked,       0.00032    0    1          1        ""
 306  28023WB,6A,  0.00032   0    1          1          4   "Soybeans-flour (low fat)", ""
     12      Cooked: NFS,          0.00032    0    1          1        ""
     13      Baked,                0.00032    0    1          1        ""
     15      Fried,                0.00032    0    1          1        ""
     31      Canned: NFS,          0.00032    0    1          1        ""
 307  28023WC,6A,  0.00032   0    1          1          8   "Soybeans-flour (defatted)", ""
     12      Cooked: NFS,          0.00032    0    1          1        ""
     13      Baked,                0.00032    0    1          1        ""
     14      Boiled,               0.00032    0    1          1        ""
     15      Fried,                0.00032    0    1          1        ""
     31      Canned: NFS,          0.00032    0    1          1        ""
     34      Canned: Boiled,       0.00032    0    1          1        ""
     42      Frozen: Cooked,       0.00032    0    1          1        ""
     98      Refined,              0.00032    0    1          1        ""
 311  28080OA,O,   2.16      0    1          1          1   "Peppermint-oil", ""
     14      Boiled,               2.16       0    1          1        ""
 313  28081OA,O,   2.16      0    1          1          0   "Spearmint-oil", ""
 315  43058AA,O,   0.00272   0    1          1          0   "Grapes-wine and sherry", "policy says
DEEM default, which is 1 "
 317  43060AA,O,   0.001008  0    1          1          4   "Gelatin", ""
```

```
    12      Cooked: NFS,          0.001008   0    1          1        ""
    13      Baked,                0.001008   0    1          1        ""
    14      Boiled,               0.001008   0    1          1        ""
    41      Frozen: NFS,          0.001008   0    1          1        ""
318  50000DB,D,   0.000723  55   1          1         16  "Milk-nonfat solids", ""
    12      Cooked: NFS,          0.000723   55   1          1        ""
    13      Baked,                0.000723   55   1          1        ""
    14      Boiled,               0.000723   55   1          1        ""
    15      Fried,                0.000723   55   1          1        ""
    16      Pasteurized,          0.000723   55   1          1        ""
    18      Dried,                0.000723   55   1          1        ""
    31      Canned: NFS,          0.000723   55   1          1        ""
    32      Canned: Cooked,       0.000723   55   1          1        ""
    34      Canned: Boiled,       0.000723   55   1          1        ""
    41      Frozen: NFS,          0.000723   55   1          1        ""
    42      Frozen: Cooked,       0.000723   55   1          1        ""
    43      Frozen: Baked,        0.000723   55   1          1        ""
    45      Frozen: Fried,        0.000723   55   1          1        ""
    51      Cured: NFS (smoked/p, 0.000723   55   1          1        ""
    52      Cured: Cooked(smokd/, 0.000723   55   1          1        ""
    98      Refined,              0.000723   55   1          1        ""
319  50000FA,D,   0.02225   55   30.77      1         14  "Milk-fat solids", ""
    12      Cooked: NFS,          0.02225    55   30.77      1        ""
    13      Baked,                0.02225    55   30.77      1        ""
    14      Boiled,               0.02225    55   30.77      1        ""
    15      Fried,                0.02225    55   30.77      1        ""
    16      Pasteurized,          0.02225    55   30.77      1        ""
    18      Dried,                0.02225    55   30.77      1        ""
    31      Canned: NFS,          0.02225    55   30.77      1        ""
    32      Canned: Cooked,       0.02225    55   30.77      1        ""
    34      Canned: Boiled,       0.02225    55   30.77      1        ""
    41      Frozen: NFS,          0.02225    55   30.77      1        ""
    42      Frozen: Cooked,       0.02225    55   30.77      1        ""
    45      Frozen: Fried,        0.02225    55   30.77      1        ""
    51      Cured: NFS (smoked/p, 0.02225    55   30.77      1        ""
    52      Cured: Cooked(smokd/, 0.02225    55   30.77      1        ""
320  50000SA,D,   0.000723  55   1          1         14  "Milk sugar (lactose)", ""
    12      Cooked: NFS,          0.000723   55   1          1        ""
    13      Baked,                0.000723   55   1          1        ""
    14      Boiled,               0.000723   55   1          1        ""
    15      Fried,                0.000723   55   1          1        ""
    16      Pasteurized,          0.000723   55   1          1        ""
    18      Dried,                0.000723   55   1          1        ""
    31      Canned: NFS,          0.000723   55   1          1        ""
    32      Canned: Cooked,       0.000723   55   1          1        ""
    34      Canned: Boiled,       0.000723   55   1          1        ""
    41      Frozen: NFS,          0.000723   55   1          1        ""
    42      Frozen: Cooked,       0.000723   55   1          1        ""
    45      Frozen: Fried,        0.000723   55   1          1        ""
    51      Cured: NFS (smoked/p, 0.000723   55   1          1        ""
    52      Cured: Cooked(smokd/, 0.000723   55   1          1        ""
321  53001BA,M,   0.001     56   1          1         0   "Beef-meat byproducts", "marketbasket"
322  53001BB,M,   0.001     56   1          1         0   "Beef-other organ meats", ""
323  53001DA,M,   0.001     56   1.92       1         0   "Beef-dried", ""
324  53001FA,M,   0.001     56   5          1         0   "Beef-fat w/o bones", ""
325  53001KA,M,   0.001     56   1          1         0   "Beef-kidney", ""
326  53001LA,M,   0.001     56   1          1         0   "Beef-liver", ""
327  53001MA,M,   0.001     56   1          1         0   "Beef-lean (fat/free) w/o bones", ""
328  53002BA,M,   0.001     56   1          1         0   "Goat-meat byproducts", ""
329  53002BB,M,   0.001     56   1          1         0   "Goat-other organ meats", ""
330  53002FA,M,   0.001     56   5          1         0   "Goat-fat w/o bone", ""
331  53002KA,M,   0.001     56   1          1         0   "Goat-kidney", ""
332  53002LA,M,   0.001     56   1          1         0   "Goat-liver", ""
```

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 333  53002MA,M,   0.001     56   1         1         0   "Goat-lean (fat/free) w/o bone", ""
 334  53003AA,M,   0.001     56   1         1         0   "Horsemeat", ""
 336  53005BA,M,   0.001     56   1         1         0   "Sheep-meat byproducts", ""
 337  53005BB,M,   0.001     56   1         1         0   "Sheep-other organ meats", ""
 338  53005FA,M,   0.001     56   5         1         0   "Sheep-fat w/o bone", ""
 339  53005KA,M,   0.001     56   1         1         0   "Sheep-kidney", ""
 340  53005LA,M,   0.001     56   1         1         0   "Sheep-liver", ""
 341  53005MA,M,   0.001     56   1         1         0   "Sheep-lean (fat free) w/o bone", ""
 342  53006BA,M,   0.001     57   1         1         0   "Pork-meat byproducts", "market basket"
 343  53006BB,M,   0.001     57   1         1         0   "Pork-other organ meats", ""
 344  53006FA,M,   0.001     57   5         1         0   "Pork-fat w/o bone", ""
 345  53006KA,M,   0.001     57   1         1         0   "Pork-kidney", ""
 346  53006LA,M,   0.001     57   1         1         0   "Pork-liver", ""
 347  53006MA,M,   0.001     57   1         1         0   "Pork-lean (fat free) w/o bone", ""
 360  55013BA,P,   0.000001  0    1         1         0   "Poultry-other-lean (fat free) w/o
bone", ""
 361  55013LA,P,   0.000001  0    1         1         0   "Poultry-other-giblets(liver)", ""
 362  55013MA,P,   0.000013  0    1         1         0   "Poultry-other-fat w/o bones", ""
 363  55014AA,P,   0.000002  0    1         1         0   "Eggs-whole", ""
 364  55014AB,P,   0.000002  0    1         1         0   "Eggs-white only", ""
 365  55014AC,P,   0.000002  0    1         1         0   "Eggs-yolk only", ""
 366  55015BA,P,   0.000001  0    1         1         0   "Chicken-byproducts", ""
 367  55015LA,P,   0.000001  0    1         1         0   "Chicken-giblets(liver)", ""
 368  55015MA,P,   0.000013  0    1         1         0   "Chicken-fat w/o bones", ""
 369  55015MB,P,   0.000001  0    1         1         0   "Chicken-lean/fat free w/o bones", ""
 377  04001JC,11,  0.001     18   3         1         4   "Apples-juice-concentrate", ""
     12      Cooked: NFS,          0.001      18   3         1        ""
     13      Baked,                0.001      18   3         1        ""
     31      Canned: NFS,          0.001      18   3         1        ""
     41      Frozen: NFS,          0.001      18   3         1        ""
 378  06002NA,O,   0.000423  0    1         1         2   "Bananas-juice", ""
     11      Uncooked,             0.000423   0    1         1        ""
     31      Canned: NFS,          0.000423   0    1         1        ""
 379  25002MO,1A,  0.001     62   1         1         1   "Sugar-beet-molasses", "NBC"
     98      Refined,              0.001      62   1         1        "NBC"
 383  13007SA,5B,  0.001     38   1         1         1   "Cabbage-savoy", ""
     12      Cooked: NFS,          0.001      38   1         1        ""
 385  55015EL,P,   0.000001  0    1         1         0   "Chicken-giblets (excl. liver)", ""
 388  24002MO,15,  0.00088   0    0.05      1         2   "Corn grain/sugar-molasses", ""
     12      Cooked: NFS,          0.00088    0    0.05      1        ""
     41      Frozen: NFS,          0.00088    0    0.05      1        ""
 389  01010JC,O,   0.0209    0    1         1         1   "Cranberries-juice-concentrate", "3.3 X
.3"
     31      Canned: NFS,          0.0209     0    1         1        "3.3 X .3"
 392  01014JC,O,   0.00272   0    0.9       1         5   "Grapes-juice-concentrate",
"(3.6/1.2)*0.3 CF"
     12      Cooked: NFS,          0.00272    0    0.9       1        "(3.6/1.2)*0.3 CF"
     13      Baked,                0.00272    0    0.9       1        "(3.6/1.2)*0.3 CF"
     14      Boiled,               0.00272    0    0.9       1        "(3.6/1.2)*0.3 CF"
     31      Canned: NFS,          0.00272    0    0.9       1        "(3.6/1.2)*0.3 CF"
     41      Frozen: NFS,          0.00272    0    0.9       1        "(3.6/1.2)*0.3 CF"
 398  50000WA,D,   0.000723  55   1         1        15   "Milk-based water", ""
     12      Cooked: NFS,          0.000723   55   1         1        ""
     13      Baked,                0.000723   55   1         1        ""
     14      Boiled,               0.000723   55   1         1        ""
     15      Fried,                0.000723   55   1         1        ""
     16      Pasteurized,          0.000723   55   1         1        ""
     18      Dried,                0.000723   55   1         1        ""
     31      Canned: NFS,          0.000723   55   1         1        ""
     32      Canned: Cooked,       0.000723   55   1         1        ""
     33      Canned: Baked,        0.000723   55   1         1        ""
     34      Canned: Boiled,       0.000723   55   1         1        ""
     41      Frozen: NFS,          0.000723   55   1         1        ""
```

```
     42      Frozen: Cooked,       0.000723   55   1          1        ""
     43      Frozen: Baked,        0.000723   55   1          1        ""
     45      Frozen: Fried,        0.000723   55   1          1        ""
     52      Cured: Cooked(smokd/, 0.000723   55   1          1        ""
 402  05004JA,12,  0.001228  0    1         1          2   "Peaches-juice", ""
     11      Uncooked,             0.001228   0    1          1        ""
     31      Canned: NFS,          0.001228   0    1          1        ""
 403  15006BT,O,   0.001     58   1.89      1          2   "Peanuts-butter", ""
     13      Baked,                0.001      58   1.89       1        ""
     14      Boiled,               0.001      58   1.89       1        ""
 404  04003NA,11,  0.000965  0    1         1          7   "Pears-juice", ""
     11      Uncooked,             0.000965   0    1          1        ""
     12      Cooked: NFS,          0.000965   0    1          1        ""
     13      Baked,                0.000965   0    1          1        ""
     31      Canned: NFS,          0.000965   0    1          1        ""
     33      Canned: Baked,        0.000965   0    1          1        ""
     41      Frozen: NFS,          0.000965   0    1          1        ""
     42      Frozen: Cooked,       0.000965   0    1          1        ""
 405  15008AA,6B,  0.001     51   1         1          4   "Peas-succulent/blackeye/cowpea", ""
     12      Cooked: NFS,          0.001      51   1          1        ""
     14      Boiled,               0.001      51   1          1        ""
     32      Canned: Cooked,       0.001      51   1          1        ""
     42      Frozen: Cooked,       0.001      51   1          1        ""
 407  14023AA,1AB, 0.001     46   1         1          1   "Radishes-japanese (daiken)", ""
     12      Cooked: NFS,          0.001      46   1          1        ""
 413  15009AB,6A,  0.001     48   1         1          5   "Snowpeas", ""
     11      Uncooked,             0.001      48   1          1        ""
     12      Cooked: NFS,          0.001      48   1          1        ""
     14      Boiled,               0.001      48   1          1        ""
     15      Fried,                0.001      48   1          1        ""
     42      Frozen: Cooked,       0.001      48   1          1        ""
 416  01016JA,O,   0.00022   0    0.3       1          5   "Strawberries-juice", ""
     11      Uncooked,             0.00022    0    0.3        1        ""
     12      Cooked: NFS,          0.00022    0    0.3        1        ""
     13      Baked,                0.00022    0    0.3        1        ""
     14      Boiled,               0.00022    0    0.3        1        ""
     31      Canned: NFS,          0.00022    0    0.3        1        ""
 417  15018HA,O,   0.00046   0    1         1          2   "Sunflower-seeds", "AR x 1% CT"
     11      Uncooked,             0.00046    0    1          1        "AR x 1% CT"
     13      Baked,                0.00046    0    1          1        "AR x 1% CT"
 418  14018LV,2,   0.001     35   1         1          0   "Sweet potatos-leaves", ""
 420  02008JC,10,  0.001     12   3.2       1          0   "Tangerines-juice-concentrate",
"7.35/2.3"
 423  11005DA,8,   0.00407   0    14.3      1          2   "Tomatoes-dried", ""
     12      Cooked: NFS,          0.00407    0    14.3       1        ""
     15      Fried,                0.00407    0    14.3       1        ""
 431  030090L,14,  0.0195    0    1         1          0   "Walnut oil", "AR calcd from average of
FT & %CT"
 437  24007OL,15,  0.001     53   1         1          0   "Wheat-germ oil", "wheat rough file"
 441  02002JC,10,  0.001     12   3.93      1          1   "Grapefruit-juice-concentrate",
"8.26/2.1"
     41      Frozen: NFS,          0.001      12   3.93       1        "8.26/2.1"
 442  02004JC,10,  0.001     12   5.7       1          6   "Lemons-juice-concentrate", "11.4/2"
     12      Cooked: NFS,          0.001      12   5.7        1        "11.4/2"
     13      Baked,                0.001      12   5.7        1        "11.4/2"
     14      Boiled,               0.001      12   5.7        1        "11.4/2"
     31      Canned: NFS,          0.001      12   5.7        1        "11.4/2"
     34      Canned: Boiled,       0.001      12   5.7        1        "11.4/2"
     41      Frozen: NFS,          0.001      12   5.7        1        "11.4/2"
 443  02005JC,10,  0.001     12   3         1          2   "Limes-juice-concentrate", "6/2"
     12      Cooked: NFS,          0.001      12   3          1        "6/2"
     41      Frozen: NFS,          0.001      12   3          1        "6/2"
 448  02002HA,10,  0.001     5    1         1          0   "Grapefruit peel", ""
```

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451  No Code,5A,  0.001     36   1         1          1   "Broccoli-chinese", ""
    14      Boiled,              0.001      36   1          1        ""
452  No Code,5B,  0.001     59   1         1          5   "Bok choy", ""
    11      Uncooked,            0.001      59   1          1        ""
    12      Cooked: NFS,         0.001      59   1          1        ""
    14      Boiled,              0.001      59   1          1        ""
    42      Frozen: Cooked,      0.001      59   1          1        ""
    51      Cured: NFS (smoked/p, 0.001     59   1          1        ""
480  06016GA,O,   0.001     28   1         1          1   "Plantains-green", ""
    15      Fried,               0.001      28   1          1        ""
481  06016DA,O,   0.001     28   3.9       1          0   "Plantains-dried", ""
482  No Code,O,   0.00032   0    1         1          11  "Soybeans-protein isolate", ""
    12      Cooked: NFS,         0.00032    0    1          1        ""
    13      Baked,               0.00032    0    1          1        ""
    14      Boiled,              0.00032    0    1          1        ""
    15      Fried,               0.00032    0    1          1        ""
    31      Canned: NFS,         0.00032    0    1          1        ""
    32      Canned: Cooked,      0.00032    0    1          1        ""
    33      Canned: Baked,       0.00032    0    1          1        ""
    34      Canned: Boiled,      0.00032    0    1          1        ""
    41      Frozen: NFS,         0.00032    0    1          1        ""
    42      Frozen: Cooked,      0.00032    0    1          1        ""
    51      Cured: NFS (smoked/p, 0.00032   0    1          1        ""
484  No Code,O,   0.001     46   1         1          0   "Radishes-oriental", ""
940  No Code,O,   0.001     58   1         1          5   "Peanuts-hulled", ""
    12      Cooked: NFS,         0.001      58   1          1        ""
    13      Baked,               0.001      58   1          1        ""
    14      Boiled,              0.001      58   1          1        ""
    15      Fried,               0.001      58   1          1        ""
    41      Frozen: NFS,         0.001      58   1          1        ""
```

Attachment 3: 3.b. Acute DEEM™ Analysis using NFS data to greatest extent possible.

```
"Chlorpyrifos "
 0
NEWMCN,         0.0017
NOEL,           0               0               0
09-30-1999/18:31:23
 66
CRANBERRY.RDF
Cpygrape.rdf
recitrusoth.rdf
Straw.rdf
regrapefruit.rdf
CPYGrapeFruitNBC.RDF
CPYCitrusNBC.RDF
relemon.rdf
CPYlemonNBC.RDF
reorange.rdf
cpyorangeprocnbc.rdf
regOrjuice2.rdf
cpyalmon.RDF
cpynuts.RDF
cpypecan.RDF
cpywalnu.RDF
regappledectrunc.RDF
regApjuice2.rdf
cpypearsingleNB.rdf
cpyPearNB-C.rdf
Cpychers.rdf
Cpychert.rdf
renecttrunc.rdf
repeachtrunc.rdf
peachcan.rdf
replumtrunc.rdf
cpyplumnb-c.rdf
CPYBANAN.rdf
cpykiwi.rdf
Cpycucu.rdf
Cpypump.rdf
Cpybellp.rdf
regTomato2.rdf
cpytomatonb-c.rdf
cpyrootg.rdf
Cpybroccoli.rdf
CpyBruss.rdf
cpycabbg.rdf
cpycaull.rdf
cpycolrd.rdf
cpykale.rdf
cpykohlr.rdf
cpymustr.rdf
resweetpottrun.RDF
cpyonion.RDF
radish.rdf
cpygarlic.RDF
CPYGRBEN.rdf
cpyswcornf.rdf
cpyswcrp.rdf
cpysweetpeas.rdf
cpyasfda.RDF
Cpywhpdp.rdf
cpysbeet.RDF
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regWhmilk2.rdf
cpyGB.rdf
CPYprksa.rdf
PEANUT.rdf
cpybokch.rdf
Applesdir2.rdf
grbeanproc.rdf
cpysugarbtnb-c.rdf
cpyswpotnb-c.rdf
Orangeproc.RDF
regApsauce2.rdf
Pbutter.rdf
-1  "EPA analysis; de-composited PDP/FDA (FT)"
 999
 8    01010AA,O,   0.001     1    1         1         6   "Cranberries", ""
     11      Uncooked,             0.001      1    1          1        ""
     12      Cooked: NFS,          0.001      1    1          1        ""
     13      Baked,                0.001      1    1          1        ""
     18      Dried,                0.001      1    1          1        ""
     31      Canned: NFS,          0.001      1    1          1        ""
     42      Frozen: Cooked,       0.001      1    1          1        ""
 9    01010JA,O,   0.0209    0    0.3       0.6       3   "Cranberries-juice", ""
     11      Uncooked,             0.0209     0    0.3        0.6      ""
     12      Cooked: NFS,          0.0209     0    0.3        0.6      ""
     31      Canned: NFS,          0.0209     0    0.3        0.6      ""
 13   01014AA,O,   0.001     2    1         1         4   "Grapes", ""
     11      Uncooked,             0.001      2    1          1        ""
     12      Cooked: NFS,          0.001      2    1          1        ""
     31      Canned: NFS,          0.001      2    1          1        ""
     41      Frozen: NFS,          0.001      2    1          1        ""
 14   01014DA,O,   0.001     2    0.17      1         6   "Grapes-raisins", ""
     11      Uncooked,             0.001      2    0.17       1        ""
     12      Cooked: NFS,          0.001      2    0.17       1        ""
     13      Baked,                0.001      2    0.17       1        ""
     14      Boiled,               0.001      2    0.17       1        ""
     18      Dried,                0.001      2    0.17       1        ""
     42      Frozen: Cooked,       0.001      2    0.17       1        ""
 15   01014JA,O,   0.00272   0    0.3       1         6   "Grapes-juice", ""
     11      Uncooked,             0.00272    0    0.3        1        ""
     12      Cooked: NFS,          0.00272    0    0.3        1        ""
     14      Boiled,               0.00272    0    0.3        1        ""
     31      Canned: NFS,          0.00272    0    0.3        1        ""
     34      Canned: Boiled,       0.00272    0    0.3        1        ""
     41      Frozen: NFS,          0.00272    0    0.3        1        ""
 17   01016AA,O,   0.001     4    1         1         7   "Strawberries", ""
     11      Uncooked,             0.001      4    1          1        ""
     12      Cooked: NFS,          0.001      4    1          1        ""
     13      Baked,                0.001      4    1          1        ""
     14      Boiled,               0.001      4    1          1        ""
     31      Canned: NFS,          0.001      4    1          1        ""
     34      Canned: Boiled,       0.001      4    1          1        ""
     41      Frozen: NFS,          0.001      4    1          1        ""
 20   02001AA,10,  0.001     3    1         1         2   "Citrus citron", ""
     13      Baked,                0.001      3    1          1        ""
     14      Boiled,               0.001      3    1          1        ""
 22   02002AB,10,  0.001     5    1         1         3   "Grapefruit-peeled fruit", ""
     11      Uncooked,             0.001      5    1          1        ""
     12      Cooked: NFS,          0.001      5    1          1        ""
     31      Canned: NFS,          0.001      6    1          1        ""
 23   02002JA,10,  0.001     12   1         1         2   "Grapefruit-juice", ""
     11      Uncooked,             0.001      12   1          1        ""
     31      Canned: NFS,          0.001      12   1          1        ""
 24   02003AA,10,  0.001     7    1         1         0   "Kumquats", ""
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26   02004AB,10,  0.001     8    1         1          3   "Lemons-peeled fruit", ""
     11      Uncooked,             0.001      8    1          1        ""
     12      Cooked: NFS,          0.001      8    1          1        ""
     31      Canned: NFS,          0.001      9    1          1        ""
27   02004HA,10,  0.001     8    1         1          6   "Lemons-peel", ""
     11      Uncooked,             0.001      8    1          1        ""
     13      Baked,                0.001      8    1          1        ""
     14      Boiled,               0.001      8    1          1        ""
     31      Canned: NFS,          0.001      9    1          1        ""
     34      Canned: Boiled,       0.001      9    1          1        ""
     41      Frozen: NFS,          0.001      9    1          1        ""
28   02004JA,10,  0.001     12   1         1          10  "Lemons-juice", ""
     11      Uncooked,             0.001      12   1          1        ""
     12      Cooked: NFS,          0.001      12   1          1        ""
     13      Baked,                0.001      12   1          1        ""
     14      Boiled,               0.001      12   1          1        ""
     15      Fried,                0.001      12   1          1        ""
     31      Canned: NFS,          0.001      12   1          1        ""
     32      Canned: Cooked,       0.001      12   1          1        ""
     34      Canned: Boiled,       0.001      12   1          1        ""
     41      Frozen: NFS,          0.001      12   1          1        ""
     42      Frozen: Cooked,       0.001      12   1          1        ""
30   02005AB,10,  0.001     3    3         1          1   "Limes-peeled fruit", ""
     11      Uncooked,             0.001      3    3          1        ""
31   02005HA,10,  0.001     3    3         1          2   "Limes-peel", ""
     13      Baked,                0.001      3    3          1        ""
     14      Boiled,               0.001      3    3          1        ""
32   02005JA,10,  0.001     12   1         1          5   "Limes-juice", ""
     11      Uncooked,             0.001      12   1          1        ""
     31      Canned: NFS,          0.001      12   1          1        ""
     32      Canned: Cooked,       0.001      12   1          1        ""
     34      Canned: Boiled,       0.001      12   1          1        ""
     41      Frozen: NFS,          0.001      12   1          1        ""
33   02006JC,10,  0.001     12   3.72      1          0   "Oranges-juice-concentrate", ""
34   02006AB,10,  0.001     10   1         1          3   "Oranges-peeled fruit", ""
     11      Uncooked,             0.001      10   1          1        ""
     12      Cooked: NFS,          0.001      10   1          1        ""
     31      Canned: NFS,          0.001      11   1          1        ""
35   02006HA,10,  0.001     10   1         1          4   "Oranges-peel", ""
     11      Uncooked,             0.001      10   1          1        ""
     12      Cooked: NFS,          0.001      10   1          1        ""
     31      Canned: NFS,          0.001      11   1          1        ""
     41      Frozen: NFS,          0.001      11   1          1        ""
36   02006JA,10,  0.001     12   1         1          4   "Oranges-juice", ""
     11      Uncooked,             0.001      12   1          1        ""
     12      Cooked: NFS,          0.001      12   1          1        ""
     31      Canned: NFS,          0.001      12   1          1        ""
     41      Frozen: NFS,          0.001      12   1          1        ""
37   02007AA,10,  0.001     3    1         1          0   "Tangelos", ""
38   02008AA,10,  0.001     3    1         1          3   "Tangerines", ""
     11      Uncooked,             0.001      3    1          1        ""
     31      Canned: NFS,          0.001      7    1          1        ""
     41      Frozen: NFS,          0.001      7    1          1        ""
39   02008JA,10,  0.001     12   1         1          0   "Tangerines-juice", ""
40   03001AA,14,  0.001     13   1         1          6   "Almonds", ""
     11      Uncooked,             0.001      13   1          1        ""
     12      Cooked: NFS,          0.001      13   1          1        ""
     13      Baked,                0.001      13   1          1        ""
     14      Boiled,               0.001      13   1          1        ""
     18      Dried,                0.001      13   1          1        ""
     41      Frozen: NFS,          0.001      13   1          1        ""
41   03002AA,14,  0.001     14   1         1          4   "Brazil nuts", ""
     11      Uncooked,             0.001      14   1          1        ""
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    13      Baked,                0.001      14   1          1        ""
    14      Boiled,               0.001      14   1          1        ""
    16      Pasteurized,          0.001      14   1          1        ""
 42  03003AA,14,  0.001     14   1          1          3   "Cashews", ""
    11      Uncooked,             0.001      14   1          1        ""
    13      Baked,                0.001      14   1          1        ""
    14      Boiled,               0.001      14   1          1        ""
 43  03004AA,14,  0.001     14   1          1          2   "Chestnuts", ""
    12      Cooked: NFS,          0.001      14   1          1        ""
    13      Baked,                0.001      14   1          1        ""
 44  03005AA,14,  0.001     14   1          1          3   "Filberts (hazelnuts)", ""
    11      Uncooked,             0.001      14   1          1        ""
    13      Baked,                0.001      14   1          1        ""
    14      Boiled,               0.001      14   1          1        ""
 45  03006AA,14,  0.001     14   1          1          1   "Hickory nuts", ""
    11      Uncooked,             0.001      14   1          1        ""
 46  03007AA,14,  0.001     14   1          1          1   "Macadamia nuts (bush nuts)", ""
    13      Baked,                0.001      14   1          1        ""
 47  03008AA,14,  0.001     15   1          1          3   "Pecans", ""
    11      Uncooked,             0.001      15   1          1        ""
    13      Baked,                0.001      15   1          1        ""
    14      Boiled,               0.001      15   1          1        ""
 48  03009AA,14,  0.001     16   1          1          3   "Walnuts", ""
    11      Uncooked,             0.001      16   1          1        ""
    12      Cooked: NFS,          0.001      16   1          1        ""
    13      Baked,                0.001      16   1          1        ""
 49  03010AA,14,  0.001     14   1          1          0   "Butter nuts", ""
 51  03013AA,14,  0.001     14   1          1          0   "Beech-nuts", ""
 52  04001AA,11,  0.001     17   1          1          11  "Apples", ""
    11      Uncooked,             0.001      17   1          1        ""
    12      Cooked: NFS,          0.001      17   1          1        ""
    13      Baked,                0.001      17   1          1        ""
    14      Boiled,               0.001      17   1          1        ""
    15      Fried,                0.001      17   1          1        ""
    18      Dried,                0.001      60   1          1        ""
    31      Canned: NFS,          0.001      60   1          1        ""
    32      Canned: Cooked,       0.001      60   1          1        ""
    33      Canned: Baked,        0.001      60   1          1        ""
    34      Canned: Boiled,       0.001      65   1          1        ""
    42      Frozen: Cooked,       0.001      60   1          1        ""
 53  04001DA,11,  0.004282  0    8          1          4   "Apples-dried", "point est average of
RDF"
    13      Baked,                0.004282   0    8          1        "point est"
    14      Boiled,               0.004282   0    8          1        "point est"
    18      Dried,                0.004282   0    8          1        "point est"
    42      Frozen: Cooked,       0.004282   0    8          1        "point est"
 54  04001JA,11,  0.001     18   1          1          5   "Apples-juice/cider", ""
    11      Uncooked,             0.001      18   1          1        ""
    12      Cooked: NFS,          0.001      18   1          1        ""
    14      Boiled,               0.001      18   1          1        ""
    31      Canned: NFS,          0.001      18   1          1        ""
    41      Frozen: NFS,          0.001      18   1          1        ""
 56  04003AA,11,  0.001     19   1          1          5   "Pears", ""
    11      Uncooked,             0.001      19   1          1        ""
    12      Cooked: NFS,          0.001      19   1          1        ""
    13      Baked,                0.001      19   1          1        ""
    14      Boiled,               0.001      19   1          1        ""
    31      Canned: NFS,          0.001      20   1          1        ""
 57  04003DA,11,  0.000965  0    6.25       1          3   "Pears-dried", ""
    13      Baked,                0.000965   0    6.25       1        ""
    14      Boiled,               0.000965   0    6.25       1        ""
    18      Dried,                0.000965   0    6.25       1        ""
 61  05002AA,12,  0.001     21   1          1          7   "Cherries", "sweet"
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    11      Uncooked,              0.001      21   1          1        "sweet"
    12      Cooked: NFS,           0.001      21   1          1        "sweet"
    13      Baked,                 0.001      21   1          1        "sweet"
    14      Boiled,                0.001      21   1          1        "sweet"
    31      Canned: NFS,           0.001      22   1          1        "tart"
    33      Canned: Baked,         0.001      22   1          1        "tart"
    41      Frozen: NFS,           0.001      22   1          1        "tart"
62   05002DA,12,  0.001     22   4          1          0   "Cherries-dried", "tart"
63   05002JA,12,  0.00119   0    0.3        1          4   "Cherries-juice", "tart"
    13      Baked,                 0.00119    0    0.3        1        "tart"
    14      Boiled,                0.00119    0    0.3        1        "tart"
    31      Canned: NFS,           0.00119    0    0.3        1        "tart"
    41      Frozen: NFS,           0.00119    0    0.3        1        "tart"
64   05003AA,12,  0.001     23   1          1          1   "Nectarines", ""
    11      Uncooked,              0.001      23   1          1        ""
65   05004AA,12,  0.001     24   1          1          6   "Peaches", ""
    11      Uncooked,              0.001      24   1          1        ""
    12      Cooked: NFS,           0.001      24   1          1        ""
    13      Baked,                 0.001      24   1          1        ""
    14      Boiled,                0.001      24   1          1        ""
    31      Canned: NFS,           0.001      25   1          1        ""
    41      Frozen: NFS,           0.001      25   1          1        ""
66   05004DA,12,  0.001228  0    7          1          2   "Peaches-dried", ""
    14      Boiled,                0.001228   0    7          1        ""
    18      Dried,                 0.001228   0    7          1        ""
67   05005AA,12,  0.001     26   1          1          5   "Plums (damsons)", ""
    11      Uncooked,              0.001      26   1          1        ""
    12      Cooked: NFS,           0.001      26   1          1        ""
    31      Canned: NFS,           0.001      27   1          1        ""
    42      Frozen: Cooked,        0.001      27   1          1        ""
    51      Cured: NFS (smoked/p, 0.001       27   1          1        ""
68   05005DA,12,  0.001     27   5          1          4   "Plums-prunes (dried)", ""
    13      Baked,                 0.001      27   5          1        ""
    14      Boiled,                0.001      27   5          1        ""
    18      Dried,                 0.001      27   5          1        ""
    31      Canned: NFS,           0.001      27   5          1        ""
69   05005JA,12,  0.00055   0    1.4        1          2   "Plums/prune-juice", "average cald from
fresh peach"
    11      Uncooked,              0.00055    0    1.4        1        "average calcd from fresh
peach"
    31      Canned: NFS,           0.00055    0    1.4        1        "average calcd from fresh
peach"
72   06002AB,O,   0.001     28   1          1          7   "Bananas", ""
    11      Uncooked,              0.001      28   1          1        ""
    12      Cooked: NFS,           0.001      28   1          1        ""
    13      Baked,                 0.001      28   1          1        ""
    14      Boiled,                0.001      28   1          1        ""
    15      Fried,                 0.001      28   1          1        ""
    31      Canned: NFS,           0.001      28   1          1        ""
    32      Canned: Cooked,        0.001      28   1          1        ""
73   06002DA,O,   0.000423  0    3.9        1          4   "Bananas-dried", ""
    13      Baked,                 0.000423   0    3.9        1        ""
    15      Fried,                 0.000423   0    3.9        1        ""
    18      Dried,                 0.000423   0    3.9        1        ""
    32      Canned: Cooked,        0.000423   0    3.9        1        ""
78   06005AA,O,   0.0001    0    1          0.01       2   "Figs", ""
    11      Uncooked,              0.0001     0    1          0.01     ""
    13      Baked,                 0.0001     0    1          0.01     ""
94   06016AA,O,   0.001     28   1          1          3   "Plantains-ripe", ""
    11      Uncooked,              0.001      28   1          1        ""
    14      Boiled,                0.001      28   1          1        ""
    15      Fried,                 0.001      28   1          1        ""
97   06018AA,O,   0.001     29   1          1          2   "Kiwi fruit", ""
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    11      Uncooked,             0.001      29   1          1        ""
    31      Canned: NFS,          0.001      29   1          1        ""
148  10010AA,9B,  0.001     30   1          1          3   "Cucumbers", ""
    11      Uncooked,             0.001      30   1          1        ""
    34      Canned: Boiled,       0.001      30   1          1        ""
    60      Canned: Cured,        0.001      30   1          1        ""
149  10011AA,9B,  0.001     31   1          1          6   "Pumpkin", ""
    12      Cooked: NFS,          0.001      31   1          1        ""
    13      Baked,                0.001      31   1          1        ""
    14      Boiled,               0.001      31   1          1        ""
    15      Fried,                0.001      31   1          1        ""
    33      Canned: Baked,        0.001      31   1          1        ""
    34      Canned: Boiled,       0.001      31   1          1        ""
155  11003AA,8,   0.001     32   1          1          9   "Peppers-sweet(garden)", ""
    11      Uncooked,             0.001      32   1          1        ""
    12      Cooked: NFS,          0.001      32   1          1        ""
    13      Baked,                0.001      32   1          1        ""
    14      Boiled,               0.001      32   1          1        ""
    31      Canned: NFS,          0.001      32   1          1        ""
    32      Canned: Cooked,       0.001      32   1          1        ""
    34      Canned: Boiled,       0.001      32   1          1        ""
    42      Frozen: Cooked,       0.001      32   1          1        ""
    51      Cured: NFS (smoked/p, 0.001      32   1          1        ""
156  11003AB,8,   0.001     32   1          1          13  "Peppers-chilli incl jalapeno", ""
    11      Uncooked,             0.001      32   1          1        ""
    12      Cooked: NFS,          0.001      32   1          1        ""
    13      Baked,                0.001      32   1          1        ""
    14      Boiled,               0.001      32   1          1        ""
    15      Fried,                0.001      32   1          1        ""
    31      Canned: NFS,          0.001      32   1          1        ""
    32      Canned: Cooked,       0.001      32   1          1        ""
    33      Canned: Baked,        0.001      32   1          1        ""
    34      Canned: Boiled,       0.001      32   1          1        ""
    42      Frozen: Cooked,       0.001      32   1          1        ""
    51      Cured: NFS (smoked/p, 0.001      32   1          1        ""
    52      Cured: Cooked(smokd/, 0.001      32   1          1        ""
    60      Canned: Cured,        0.001      32   1          1        ""
157  11003AD,8,   0.001     32   1          1          1   "Peppers-other", ""
    11      Uncooked,             0.001      32   1          1        ""
159  11005AA,8,   0.001     33   1          1          10  "Tomatoes-whole", ""
    11      Uncooked,             0.001      33   1          1        ""
    12      Cooked: NFS,          0.001      33   1          1        ""
    13      Baked,                0.001      33   1          1        ""
    14      Boiled,               0.001      33   1          1        ""
    15      Fried,                0.001      33   1          1        ""
    31      Canned: NFS,          0.001      33   1          1        ""
    32      Canned: Cooked,       0.001      33   1          1        ""
    33      Canned: Baked,        0.001      33   1          1        ""
    34      Canned: Boiled,       0.001      33   1          1        ""
    42      Frozen: Cooked,       0.001      33   1          1        ""
160  11005JA,8,   0.003674  0    0.03       1          4   "Tomatoes-juice", ""
    31      Canned: NFS,          0.003674   0    0.03       1        ""
    32      Canned: Cooked,       0.003674   0    0.03       1        ""
    34      Canned: Boiled,       0.003674   0    0.03       1        ""
    42      Frozen: Cooked,       0.003674   0    0.03       1        ""
161  11005RA,8,   0.003674  0    0.1        1          7   "Tomatoes-puree", ""
    12      Cooked: NFS,          0.003674   0    0.1        1        ""
    14      Boiled,               0.003674   0    0.1        1        ""
    31      Canned: NFS,          0.003674   0    0.1        1        ""
    32      Canned: Cooked,       0.003674   0    0.1        1        ""
    33      Canned: Baked,        0.003674   0    0.1        1        ""
    34      Canned: Boiled,       0.003674   0    0.1        1        ""
    42      Frozen: Cooked,       0.003674   0    0.1        1        ""
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162  11005TA,8,   0.003674  0    0.1       1         6   "Tomatoes-paste", ""
     14      Boiled,               0.003674   0    0.1       1         ""
     31      Canned: NFS,          0.003674   0    0.1       1         ""
     32      Canned: Cooked,       0.003674   0    0.1       1         ""
     33      Canned: Baked,        0.003674   0    0.1       1         ""
     34      Canned: Boiled,       0.003674   0    0.1       1         ""
     42      Frozen: Cooked,       0.003674   0    0.1       1         ""
163  11005UA,8,   0.003674  0    2.5       1         1   "Tomatoes-catsup", ""
     34      Canned: Boiled,       0.003674   0    2.5       1         ""
168  13005AA,5A,  0.001     36   1         1         8   "Broccoli", ""
     11      Uncooked,             0.001      36   1         1         ""
     12      Cooked: NFS,          0.001      36   1         1         ""
     13      Baked,                0.001      36   1         1         ""
     14      Boiled,               0.001      36   1         1         ""
     15      Fried,                0.001      36   1         1         ""
     32      Canned: Cooked,       0.001      36   1         1         ""
     42      Frozen: Cooked,       0.001      36   1         1         ""
     44      Frozen: Boiled,       0.001      36   1         1         ""
169  13006AA,5A,  0.001     37   1         1         2   "Brussels sprouts", ""
     14      Boiled,               0.001      37   1         1         ""
     42      Frozen: Cooked,       0.001      37   1         1         ""
170  13007AA,5A,  0.001     38   1         1         8   "Cabbage-green and red", ""
     11      Uncooked,             0.001      38   1         1         ""
     12      Cooked: NFS,          0.001      38   1         1         ""
     13      Baked,                0.001      38   1         1         ""
     14      Boiled,               0.001      38   1         1         ""
     15      Fried,                0.001      38   1         1         ""
     31      Canned: NFS,          0.001      38   1         1         ""
     32      Canned: Cooked,       0.001      38   1         1         ""
     51      Cured: NFS (smoked/p, 0.001      38   1         1         ""
171  13008AA,5A,  0.001     39   1         1         5   "Cauliflower", ""
     11      Uncooked,             0.001      39   1         1         ""
     12      Cooked: NFS,          0.001      39   1         1         ""
     14      Boiled,               0.001      39   1         1         ""
     15      Fried,                0.001      39   1         1         ""
     42      Frozen: Cooked,       0.001      39   1         1         ""
172  13009AA,5B,  0.001     40   1         1         3   "Collards", ""
     14      Boiled,               0.001      40   1         1         ""
     32      Canned: Cooked,       0.001      40   1         1         ""
     42      Frozen: Cooked,       0.001      40   1         1         ""
174  13011AA,5B,  0.001     41   1         1         3   "Kale", ""
     12      Cooked: NFS,          0.001      41   1         1         ""
     14      Boiled,               0.001      41   1         1         ""
     32      Canned: Cooked,       0.001      41   1         1         ""
175  13012AA,5A,  0.001     42   1         1         1   "Kohlrabi", ""
     14      Boiled,               0.001      42   1         1         ""
183  13021AA,5B,  0.001     43   1         1         1   "Mustard greens", ""
     14      Boiled,               0.001      43   1         1         ""
188  13026AA,2,   0.001     35   1         1         3   "Turnips-tops", ""
     14      Boiled,               0.001      35   1         1         ""
     32      Canned: Cooked,       0.001      35   1         1         ""
     44      Frozen: Boiled,       0.001      35   1         1         ""
195  13049AA,O,   0.5       0    1         1         1   "Grapes-leaves", "used tolerance"
     14      Boiled,               0.5        0    1         1         "used tolerance"
205  14011AA,3,   0.001     45   1         1         12  "Onions-dry-bulb (cipollini)", ""
     11      Uncooked,             0.001      45   1         1         ""
     12      Cooked: NFS,          0.001      45   1         1         ""
     13      Baked,                0.001      45   1         1         ""
     14      Boiled,               0.001      45   1         1         ""
     15      Fried,                0.001      45   1         1         ""
     31      Canned: NFS,          0.001      45   1         1         ""
     32      Canned: Cooked,       0.001      45   1         1         ""
     34      Canned: Boiled,       0.001      45   1         1         ""
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     42      Frozen: Cooked,        0.001      45   1          1        ""
     43      Frozen: Baked,         0.001      45   1          1        ""
     44      Frozen: Boiled,        0.001      45   1          1        ""
     60      Canned: Cured,         0.001      45   1          1        ""
 206  14011DA,3,   0.000028  0    9          1          8   "Onions-dehydrated or dried", "point
calc"
     12      Cooked: NFS,           0.000028   0    9          1        "point calc"
     13      Baked,                 0.000028   0    9          1        "point calc"
     14      Boiled,                0.000028   0    9          1        "point calc"
     15      Fried,                 0.000028   0    9          1        "point calc"
     31      Canned: NFS,           0.000028   0    9          1        "point calc"
     32      Canned: Cooked,        0.000028   0    9          1        "point calc"
     34      Canned: Boiled,        0.000028   0    9          1        "point calc"
     42      Frozen: Cooked,        0.000028   0    9          1        "point calc"
 212  14014AA,1AB, 0.001     46   1          1          2   "Radishes-roots", ""
     11      Uncooked,              0.001      46   1          1        ""
     12      Cooked: NFS,           0.001      46   1          1        ""
 213  14014AB,2,   0.001     35   1          1          0   "Radishes-tops", ""
 214  14015AA,1AB, 0.001     44   1          1          0   "Rutabagas-roots", ""
 215  14015AB,2,   0.001     35   1          1          1   "Rutabagas-tops", ""
     12      Cooked: NFS,           0.001      35   1          1        ""
 218  14018AA,1CD, 0.001     44   1          1          6   "Sweet potatoes (incl yams)", ""
     12      Cooked: NFS,           0.001      44   1          1        ""
     13      Baked,                 0.001      44   1          1        ""
     14      Boiled,                0.001      44   1          1        ""
     15      Fried,                 0.001      44   1          1        ""
     32      Canned: Cooked,        0.001      63   1          1        ""
     34      Canned: Boiled,        0.001      63   1          1        ""
 219  14019AA,1AB, 0.001     44   1          1          3   "Turnips-roots", ""
     11      Uncooked,              0.001      44   1          1        ""
     12      Cooked: NFS,           0.001      44   1          1        ""
     14      Boiled,                0.001      44   1          1        ""
 227  15001AA,6C,  0.0005    0    1          0.01       1   "Beans-dry-great northern",
"toleranceX%CT"
     32      Canned: Cooked,        0.0005     0    1          0.01     "toleranceX%CT"
 228  15001AB,6C,  0.0005    0    1          0.01       6   "Beans-dry-kidney", ""
     12      Cooked: NFS,           0.0005     0    1          0.01     ""
     13      Baked,                 0.0005     0    1          0.01     ""
     14      Boiled,                0.0005     0    1          0.01     ""
     32      Canned: Cooked,        0.0005     0    1          0.01     ""
     34      Canned: Boiled,        0.0005     0    1          0.01     ""
     42      Frozen: Cooked,        0.0005     0    1          0.01     ""
 229  15001AC,6C,  0.0005    0    1          0.01       2   "Beans-dry-lima", ""
     14      Boiled,                0.0005     0    1          0.01     ""
     32      Canned: Cooked,        0.0005     0    1          0.01     ""
 230  15001AD,6C,  0.0005    0    1          0.01       2   "Beans-dry-navy (pea)", ""
     32      Canned: Cooked,        0.0005     0    1          0.01     ""
     34      Canned: Boiled,        0.0005     0    1          0.01     ""
 231  15001AE,6C,  0.0005    0    1          0.01       5   "Beans-dry-other", ""
     12      Cooked: NFS,           0.0005     0    1          0.01     ""
     13      Baked,                 0.0005     0    1          0.01     ""
     14      Boiled,                0.0005     0    1          0.01     ""
     15      Fried,                 0.0005     0    1          0.01     ""
     34      Canned: Boiled,        0.0005     0    1          0.01     ""
 232  15001AF,6C,  0.0005    0    1          0.01       6   "Beans-dry-pinto", ""
     12      Cooked: NFS,           0.0005     0    1          0.01     ""
     13      Baked,                 0.0005     0    1          0.01     ""
     14      Boiled,                0.0005     0    1          0.01     ""
     15      Fried,                 0.0005     0    1          0.01     ""
     32      Canned: Cooked,        0.0005     0    1          0.01     ""
     42      Frozen: Cooked,        0.0005     0    1          0.01     ""
 233  15002AA,6B,  0.001     48   1          1          6   "Beans-succulent-lima", ""
     11      Uncooked,              0.001      48   1          1        ""
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    12      Cooked: NFS,          0.001      48   1          1        ""
    14      Boiled,               0.001      48   1          1        ""
    32      Canned: Cooked,       0.001      61   1          1        ""
    42      Frozen: Cooked,       0.001      61   1          1        ""
    44      Frozen: Boiled,       0.001      61   1          1        ""
234  15003AA,6A,  0.001     48   1          1          9   "Beans-succulent-green", ""
    11      Uncooked,             0.001      48   1          1        ""
    12      Cooked: NFS,          0.001      48   1          1        ""
    14      Boiled,               0.001      48   1          1        ""
    31      Canned: NFS,          0.001      61   1          1        ""
    32      Canned: Cooked,       0.001      61   1          1        ""
    34      Canned: Boiled,       0.001      61   1          1        ""
    42      Frozen: Cooked,       0.001      61   1          1        ""
    44      Frozen: Boiled,       0.001      61   1          1        ""
    51      Cured: NFS (smoked/p, 0.001      61   1          1        ""
235  15003AB,6A,  0.001     61   1          1          1   "Beans-succulent-other", ""
    34      Canned: Boiled,       0.001      48   1          1        ""
236  15003AC,6A,  0.001     48   1          1          3   "Beans-succulent-yellow/wax", ""
    14      Boiled,               0.001      48   1          1        ""
    32      Canned: Cooked,       0.001      61   1          1        ""
    42      Frozen: Cooked,       0.001      61   1          1        ""
238  15005AA,15,  0.001     49   1          1          8   "Corn/sweet", "fresh"
    11      Uncooked,             0.001      49   1          1        "fresh"
    12      Cooked: NFS,          0.001      49   1          1        "fresh"
    13      Baked,                0.001      49   1          1        "fresh"
    14      Boiled,               0.001      49   1          1        "fresh"
    32      Canned: Cooked,       0.001      50   1          1        "processed"
    34      Canned: Boiled,       0.001      50   1          1        "processed"
    35      Canned: Fried,        0.001      50   1          1        "processed"
    42      Frozen: Cooked,       0.001      50   1          1        "processed"
240  15007AA,6C,  0.0005    0    1          0.01       5   "Peas (garden)-dry", "toleranceX%CT"
    12      Cooked: NFS,          0.0005     0    1          0.01     "toleranceX%CT"
    14      Boiled,               0.0005     0    1          0.01     "toleranceX%CT"
    31      Canned: NFS,          0.0005     0    1          0.01     "toleranceX%CT"
    32      Canned: Cooked,       0.0005     0    1          0.01     "toleranceX%CT"
    34      Canned: Boiled,       0.0005     0    1          0.01     "toleranceX%CT"
241  15009AA,6AB, 0.001     51   1          1          11  "Peas (garden)-green", ""
    11      Uncooked,             0.001      51   1          1        ""
    12      Cooked: NFS,          0.001      51   1          1        ""
    13      Baked,                0.001      51   1          1        ""
    14      Boiled,               0.001      51   1          1        ""
    15      Fried,                0.001      51   1          1        ""
    31      Canned: NFS,          0.001      51   1          1        ""
    32      Canned: Cooked,       0.001      51   1          1        ""
    34      Canned: Boiled,       0.001      51   1          1        ""
    42      Frozen: Cooked,       0.001      51   1          1        ""
    44      Frozen: Boiled,       0.001      51   1          1        ""
    45      Frozen: Fried,        0.001      51   1          1        ""
243  15011AB,6C,  0.001     48   1          1          1   "Lentils", ""
    14      Boiled,               0.0005     0    1          0.01     "toleranceX%CT"
244  15013AA,6C,  0.0005    0    1          0.01       4   "Mung beans (sprouts)", "toleranceX%CT"
    11      Uncooked,             0.0005     0    1          0.01     "toleranceX%CT"
    12      Cooked: NFS,          0.0005     0    1          0.01     "toleranceX%CT"
    14      Boiled,               0.0005     0    1          0.01     "toleranceX%CT"
    15      Fried,                0.0005     0    1          0.01     "toleranceX%CT"
249  15022AA,6C,  0.0005    0    1          0.01       1   "Beans-dry-broadbeans", "toleranceX%CT"
    14      Boiled,               0.0005     0    1          0.01     "toleranceX%CT"
250  15022AB,6B,  0.001     48   1          1          0   "Beans-succulent-broadbeans", ""
251  15023AA,6C,  0.0005    0    1          0.01       0   "Beans-dry-pigeon beans",
"toleranceX%CT"
253  15027AA,6,   0.001     48   1          1          0   "Beans-unspecified", "toleranceX%CT"
255  15029AA,6A,  0.00032   0    0.33       0.01       1   "Soybeans-sprouted seeds", ""
    14      Boiled,               0.00032    0    0.33       0.01     ""
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256  15030AA,6C,  0.0005    0    1         0.01      0   "Beans-dry-hyacinth", ""
257  15030AB,6,   0.001     48   1         1         0   "Beans-succulent-hyacinth", ""
258  15031AA,6C,  0.0005    0    1         0.01      1   "Beans-dry-blackeye peas/cowpea", ""
    14      Boiled,              0.0005     0    1          0.01     ""
259  15032AA,6C,  0.0005    0    1         0.01      4   "Beans-dry-garbanzo/chick pea", ""
    12      Cooked: NFS,         0.0005     0    1          0.01     ""
    14      Boiled,              0.0005     0    1          0.01     ""
    15      Fried,               0.0005     0    1          0.01     ""
    32      Canned: Cooked,      0.0005     0    1          0.01     ""
260  16002AA,O,   0.001     52   1         1         4   "Asparagus", ""
    11      Uncooked,            0.001      52   1          1        ""
    14      Boiled,              0.001      52   1          1        ""
    32      Canned: Cooked,      0.001      52   1          1        ""
    42      Frozen: Cooked,      0.001      52   1          1        ""
261  16003AA,O,   0.001     0    1         0.01      10  "Mushrooms", "1%CTXtolerance"
    11      Uncooked,            0.001      0    1          0.01     "1%CTXtolerance"
    12      Cooked: NFS,         0.001      0    1          0.01     "1%CTXtolerance"
    13      Baked,               0.001      0    1          0.01     "1%CTXtolerance"
    14      Boiled,              0.001      0    1          0.01     "1%CTXtolerance"
    15      Fried,               0.001      0    1          0.01     "1%CTXtolerance"
    31      Canned: NFS,         0.001      0    1          0.01     "1%CTXtolerance"
    32      Canned: Cooked,      0.001      0    1          0.01     "1%CTXtolerance"
    33      Canned: Baked,       0.001      0    1          0.01     "1%CTXtolerance"
    34      Canned: Boiled,      0.001      0    1          0.01     "1%CTXtolerance"
    42      Frozen: Cooked,      0.001      0    1          0.01     "1%CTXtolerance"
266  24002EA,15,  0.00088   0    1         0.08      14  "Corn grain-endosperm", ""
    11      Uncooked,            0.00088    0    1          0.08     ""
    12      Cooked: NFS,         0.00088    0    1          0.08     ""
    13      Baked,               0.00088    0    1          0.08     ""
    14      Boiled,              0.00088    0    1          0.08     ""
    15      Fried,               0.00088    0    1          0.08     ""
    31      Canned: NFS,         0.00088    0    1          0.08     ""
    32      Canned: Cooked,      0.00088    0    1          0.08     ""
    33      Canned: Baked,       0.00088    0    1          0.08     ""
    34      Canned: Boiled,      0.00088    0    1          0.08     ""
    41      Frozen: NFS,         0.00088    0    1          0.08     ""
    42      Frozen: Cooked,      0.00088    0    1          0.08     ""
    43      Frozen: Baked,       0.00088    0    1          0.08     ""
    45      Frozen: Fried,       0.00088    0    1          0.08     ""
    99      Alcohol/Fermented/Di, 0.00088   0    1          0.08     ""
267  24002HA,15,  0.00088   0    1         0.08      5   "Corn grain-bran", ""
    12      Cooked: NFS,         0.00088    0    1          0.08     ""
    13      Baked,               0.00088    0    1          0.08     ""
    14      Boiled,              0.00088    0    1          0.08     ""
    15      Fried,               0.00088    0    1          0.08     ""
    31      Canned: NFS,         0.00088    0    1          0.08     ""
268  24002SA,15,  0.00088   0    0.05      0.08      1   "Corn grain/sugar/hfcs", ""
    98      Refined,             0.00088    0    0.05       0.08     ""
276  24007AA,15,  0.001     53   1         1         4   "Wheat-rough", ""
    11      Uncooked,            0.001      53   1          1        ""
    12      Cooked: NFS,         0.001      53   1          1        ""
    13      Baked,               0.001      53   1          1        ""
    14      Boiled,              0.001      53   1          1        ""
277  24007GA,15,  0.001     53   1         1         3   "Wheat-germ", "wheat rough file"
    12      Cooked: NFS,         0.001      53   1          1        "wheat rough file"
    13      Baked,               0.001      53   1          1        "wheat rough file"
    14      Boiled,              0.001      53   1          1        "wheat rough file"
278  24007HA,15,  0.001     53   1         1         3   "Wheat-bran", "wheat rough file"
    11      Uncooked,            0.001      53   1          1        "wheat rough file"
    12      Cooked: NFS,         0.001      53   1          1        "wheat rough file"
    13      Baked,               0.001      53   1          1        "wheat rough file"
279  24007WA,15,  0.001     53   0.145     1         14  "Wheat-flour", "wheat rough file"
    11      Uncooked,            0.001      53   0.145      1        "wheat rough file"
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     12      Cooked: NFS,          0.001      53   0.145      1        "wheat rough file"
     13      Baked,                0.001      53   0.145      1        "wheat rough file"
     14      Boiled,               0.001      53   0.145      1        "wheat rough file"
     15      Fried,                0.001      53   0.145      1        "wheat rough file"
     31      Canned: NFS,          0.001      53   0.145      1        "wheat rough file"
     32      Canned: Cooked,       0.001      53   0.145      1        "wheat rough file"
     33      Canned: Baked,        0.001      53   0.145      1        "wheat rough file"
     34      Canned: Boiled,       0.001      53   0.145      1        "wheat rough file"
     41      Frozen: NFS,          0.001      53   0.145      1        "wheat rough file"
     42      Frozen: Cooked,       0.001      53   0.145      1        "wheat rough file"
     43      Frozen: Baked,        0.001      53   0.145      1        "wheat rough file"
     45      Frozen: Fried,        0.001      53   0.145      1        "wheat rough file"
     52      Cured: Cooked(smokd/, 0.001      53   0.145      1        "wheat rough file"
 282  25002SA,1A,  0.001     62   1          1          1   "Sugar-beet", "NBC"
     98      Refined,              0.001      62   1          1        "NBC"
 283  25003SA,O,   0.01      0    1          1          1   "Sugar-cane", "toleranceX100%CT"
     98      Refined,              0.01       0    1          1        "toleranceX100%CT"
 284  25003SB,O,   0.01      0    1          1          1   "Sugar-cane/molasses",
"toleranceX100%CT"
     13      Baked,                0.01       0    1          1        "toleranceX100%CT"
 287  26011AA,6C,  0.0005    0    1          0.01       1   "Guar beans", ""
     13      Baked,                0.0005     0    1          0.01     ""
 289  27002OA,15,  0.00088   0    4.5        1          1   "Corn grain-oil", "toleranceX%CT"
     98      Refined,              0.00088    0    4.5        1        "toleranceX%CT"
 290  27003OA,O,   0.0072    0    0.375      0.06       1   "Cottonseed-oil", "0.12 field trial and
6% CT"
     98      Refined,              0.0072     0    0.375      0.06     "0.12 field trial and 6%
CT"
 293  27007OA,O,   0.001     58   2          1          1   "Peanuts-oil", ""
     98      Refined,              0.001      58   2          1        ""
 297  27010OA,6A,  0.00032   0    0.14       1          1   "Soybeans-oil", "1995 AR x 1% CT"
     98      Refined,              0.00032    0    0.14       1        "1995 AR x 1% CT"
 298  27011OA,O,   0.00046   0    1          1          1   "Sunflower-oil", "AR x 1% CT"
     98      Refined,              0.00046    0    1          1        "AR x 1% CT"
 303  15023AA,6A,  0.00032   0    1          1          0   "Soybean-other", ""
 304  28023AB,6A,  0.00032   0    1          1          5   "Soybeans-mature seeds dry", ""
     12      Cooked: NFS,          0.00032    0    1          1        ""
     13      Baked,                0.00032    0    1          1        ""
     14      Boiled,               0.00032    0    1          1        ""
     15      Fried,                0.00032    0    1          1        ""
     41      Frozen: NFS,          0.00032    0    1          1        ""
 305  28023WA,6A,  0.00032   0    1          1          5   "Soybeans-flour (full fat)", ""
     12      Cooked: NFS,          0.00032    0    1          1        ""
     13      Baked,                0.00032    0    1          1        ""
     14      Boiled,               0.00032    0    1          1        ""
     34      Canned: Boiled,       0.00032    0    1          1        ""
     42      Frozen: Cooked,       0.00032    0    1          1        ""
 306  28023WB,6A,  0.00032   0    1          1          4   "Soybeans-flour (low fat)", ""
     12      Cooked: NFS,          0.00032    0    1          1        ""
     13      Baked,                0.00032    0    1          1        ""
     15      Fried,                0.00032    0    1          1        ""
     31      Canned: NFS,          0.00032    0    1          1        ""
 307  28023WC,6A,  0.00032   0    1          1          8   "Soybeans-flour (defatted)", ""
     12      Cooked: NFS,          0.00032    0    1          1        ""
     13      Baked,                0.00032    0    1          1        ""
     14      Boiled,               0.00032    0    1          1        ""
     15      Fried,                0.00032    0    1          1        ""
     31      Canned: NFS,          0.00032    0    1          1        ""
     34      Canned: Boiled,       0.00032    0    1          1        ""
     42      Frozen: Cooked,       0.00032    0    1          1        ""
     98      Refined,              0.00032    0    1          1        ""
 311  28080OA,O,   2.16      0    1          1          1   "Peppermint-oil", ""
     14      Boiled,               2.16       0    1          1        ""
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 313  28081OA,O,   2.16      0    1         1         0   "Spearmint-oil", ""
 315  43058AA,O,   0.00272   0    1         1         0   "Grapes-wine and sherry", "policy says
DEEM default, which is 1 "
 317  43060AA,O,   0.001008  0    1         1         4   "Gelatin", ""
     12      Cooked: NFS,          0.001008   0    1          1        ""
     13      Baked,                0.001008   0    1          1        ""
     14      Boiled,               0.001008   0    1          1        ""
     41      Frozen: NFS,          0.001008   0    1          1        ""
 318  50000DB,D,   0.001     55   1         1         16  "Milk-nonfat solids", ""
     12      Cooked: NFS,          0.001      55   1          1        ""
     13      Baked,                0.001      55   1          1        ""
     14      Boiled,               0.001      55   1          1        ""
     15      Fried,                0.001      55   1          1        ""
     16      Pasteurized,          0.001      55   1          1        ""
     18      Dried,                0.001      55   1          1        ""
     31      Canned: NFS,          0.001      55   1          1        ""
     32      Canned: Cooked,       0.001      55   1          1        ""
     34      Canned: Boiled,       0.001      55   1          1        ""
     41      Frozen: NFS,          0.001      55   1          1        ""
     42      Frozen: Cooked,       0.001      55   1          1        ""
     43      Frozen: Baked,        0.001      55   1          1        ""
     45      Frozen: Fried,        0.001      55   1          1        ""
     51      Cured: NFS (smoked/p, 0.001      55   1          1        ""
     52      Cured: Cooked(smokd/, 0.001      55   1          1        ""
     98      Refined,              0.001      55   1          1        ""
 319  50000FA,D,   0.0308    55   30.77     1         14  "Milk-fat solids", ""
     12      Cooked: NFS,          0.0308     55   30.77      1        ""
     13      Baked,                0.0308     55   30.77      1        ""
     14      Boiled,               0.0308     55   30.77      1        ""
     15      Fried,                0.0308     55   30.77      1        ""
     16      Pasteurized,          0.0308     55   30.77      1        ""
     18      Dried,                0.0308     55   30.77      1        ""
     31      Canned: NFS,          0.0308     55   30.77      1        ""
     32      Canned: Cooked,       0.0308     55   30.77      1        ""
     34      Canned: Boiled,       0.0308     55   30.77      1        ""
     41      Frozen: NFS,          0.0308     55   30.77      1        ""
     42      Frozen: Cooked,       0.0308     55   30.77      1        ""
     45      Frozen: Fried,        0.0308     55   30.77      1        ""
     51      Cured: NFS (smoked/p, 0.0308     55   30.77      1        ""
     52      Cured: Cooked(smokd/, 0.0308     55   30.77      1        ""
 320  50000SA,D,   0.001     55   1         1         14  "Milk sugar (lactose)", ""
     12      Cooked: NFS,          0.001      55   1          1        ""
     13      Baked,                0.001      55   1          1        ""
     14      Boiled,               0.001      55   1          1        ""
     15      Fried,                0.001      55   1          1        ""
     16      Pasteurized,          0.001      55   1          1        ""
     18      Dried,                0.001      55   1          1        ""
     31      Canned: NFS,          0.001      55   1          1        ""
     32      Canned: Cooked,       0.001      55   1          1        ""
     34      Canned: Boiled,       0.001      55   1          1        ""
     41      Frozen: NFS,          0.001      55   1          1        ""
     42      Frozen: Cooked,       0.001      55   1          1        ""
     45      Frozen: Fried,        0.001      55   1          1        ""
     51      Cured: NFS (smoked/p, 0.001      55   1          1        ""
     52      Cured: Cooked(smokd/, 0.001      55   1          1        ""
 321  53001BA,M,   0.001     56   1         1         0   "Beef-meat byproducts", "marketbasket"
 322  53001BB,M,   0.001     56   1         1         0   "Beef-other organ meats", ""
 323  53001DA,M,   0.001     56   1.92      1         0   "Beef-dried", ""
 324  53001FA,M,   0.001     56   5         1         0   "Beef-fat w/o bones", ""
 325  53001KA,M,   0.001     56   1         1         0   "Beef-kidney", ""
 326  53001LA,M,   0.001     56   1         1         0   "Beef-liver", ""
 327  53001MA,M,   0.001     56   1         1         0   "Beef-lean (fat/free) w/o bones", ""
 328  53002BA,M,   0.001     56   1         1         0   "Goat-meat byproducts", ""
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 329  53002BB,M,   0.001     56   1         1         0   "Goat-other organ meats", ""
 330  53002FA,M,   0.001     56   5         1         0   "Goat-fat w/o bone", ""
 331  53002KA,M,   0.001     56   1         1         0   "Goat-kidney", ""
 332  53002LA,M,   0.001     56   1         1         0   "Goat-liver", ""
 333  53002MA,M,   0.001     56   1         1         0   "Goat-lean (fat/free) w/o bone", ""
 334  53003AA,M,   0.001     56   1         1         0   "Horsemeat", ""
 336  53005BA,M,   0.001     56   1         1         0   "Sheep-meat byproducts", ""
 337  53005BB,M,   0.001     56   1         1         0   "Sheep-other organ meats", ""
 338  53005FA,M,   0.001     56   5         1         0   "Sheep-fat w/o bone", ""
 339  53005KA,M,   0.001     56   1         1         0   "Sheep-kidney", ""
 340  53005LA,M,   0.001     56   1         1         0   "Sheep-liver", ""
 341  53005MA,M,   0.001     56   1         1         0   "Sheep-lean (fat free) w/o bone", ""
 342  53006BA,M,   0.001     57   1         1         0   "Pork-meat byproducts", "market basket"
 343  53006BB,M,   0.001     57   1         1         0   "Pork-other organ meats", ""
 344  53006FA,M,   0.001     57   5         1         0   "Pork-fat w/o bone", ""
 345  53006KA,M,   0.001     57   1         1         0   "Pork-kidney", ""
 346  53006LA,M,   0.001     57   1         1         0   "Pork-liver", ""
 347  53006MA,M,   0.001     57   1         1         0   "Pork-lean (fat free) w/o bone", ""
 360  55013BA,P,   0.000001  0    1         1         0   "Poultry-other-lean (fat free) w/o
bone", ""
 361  55013LA,P,   0.000001  0    1         1         0   "Poultry-other-giblets(liver)", ""
 362  55013MA,P,   0.000013  0    1         1         0   "Poultry-other-fat w/o bones", ""
 363  55014AA,P,   0.000002  0    1         1         0   "Eggs-whole", ""
 364  55014AB,P,   0.000002  0    1         1         0   "Eggs-white only", ""
 365  55014AC,P,   0.000002  0    1         1         0   "Eggs-yolk only", ""
 366  55015BA,P,   0.000001  0    1         1         0   "Chicken-byproducts", ""
 367  55015LA,P,   0.000001  0    1         1         0   "Chicken-giblets(liver)", ""
 368  55015MA,P,   0.000013  0    1         1         0   "Chicken-fat w/o bones", ""
 369  55015MB,P,   0.000001  0    1         1         0   "Chicken-lean/fat free w/o bones", ""
 377  04001JC,11,  0.001     18   3         1         4   "Apples-juice-concentrate", ""
     12      Cooked: NFS,          0.001      18   3         1         ""
     13      Baked,                0.001      18   3         1         ""
     31      Canned: NFS,          0.001      18   3         1         ""
     41      Frozen: NFS,          0.001      18   3         1         ""
 378  06002NA,O,   0.000423  0    1         1         2   "Bananas-juice", ""
     11      Uncooked,             0.000423   0    1         1         ""
     31      Canned: NFS,          0.000423   0    1         1         ""
 379  25002MO,1A,  0.001     62   1         1         1   "Sugar-beet-molasses", "NBC"
     98      Refined,              0.001      62   1         1         "NBC"
 383  13007SA,5B,  0.001     38   1         1         1   "Cabbage-savoy", ""
     12      Cooked: NFS,          0.001      38   1         1         ""
 385  55015EL,P,   0.000001  0    1         1         0   "Chicken-giblets (excl. liver)", ""
 388  24002MO,15,  0.00088   0    0.05      1         2   "Corn grain/sugar-molasses", ""
     12      Cooked: NFS,          0.00088    0    0.05      1         ""
     41      Frozen: NFS,          0.00088    0    0.05      1         ""
 389  01010JC,O,   0.0209    0    1         1         1   "Cranberries-juice-concentrate", "3.3 X
.3"
     31      Canned: NFS,          0.0209     0    1         1         "3.3 X .3"
 392  01014JC,O,   0.00272   0    0.9       1         5   "Grapes-juice-concentrate",
"(3.6/1.2)*0.3 CF"
     12      Cooked: NFS,          0.00272    0    0.9       1         "(3.6/1.2)*0.3 CF"
     13      Baked,                0.00272    0    0.9       1         "(3.6/1.2)*0.3 CF"
     14      Boiled,               0.00272    0    0.9       1         "(3.6/1.2)*0.3 CF"
     31      Canned: NFS,          0.00272    0    0.9       1         "(3.6/1.2)*0.3 CF"
     41      Frozen: NFS,          0.00272    0    0.9       1         "(3.6/1.2)*0.3 CF"
 398  50000WA,D,   0.001     55   1         1        15   "Milk-based water", ""
     12      Cooked: NFS,          0.001      55   1         1         ""
     13      Baked,                0.001      55   1         1         ""
     14      Boiled,               0.001      55   1         1         ""
     15      Fried,                0.001      55   1         1         ""
     16      Pasteurized,          0.001      55   1         1         ""
     18      Dried,                0.001      55   1         1         ""
     31      Canned: NFS,          0.001      55   1         1         ""
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     32      Canned: Cooked,       0.001      55   1          1        ""
     33      Canned: Baked,        0.001      55   1          1        ""
     34      Canned: Boiled,       0.001      55   1          1        ""
     41      Frozen: NFS,          0.001      55   1          1        ""
     42      Frozen: Cooked,       0.001      55   1          1        ""
     43      Frozen: Baked,        0.001      55   1          1        ""
     45      Frozen: Fried,        0.001      55   1          1        ""
     52      Cured: Cooked(smokd/, 0.001      55   1          1        ""
 402  05004JA,12,  0.001228  0    1          1          2   "Peaches-juice", ""
     11      Uncooked,             0.001228   0    1          1        ""
     31      Canned: NFS,          0.001228   0    1          1        ""
 403  15006BT,O,   0.001     66   1.89       1          2   "Peanuts-butter", ""
     13      Baked,                0.001      66   1.89       1        ""
     14      Boiled,               0.001      66   1.89       1        ""
 404  04003NA,11,  0.000965  0    1          1          7   "Pears-juice", ""
     11      Uncooked,             0.000965   0    1          1        ""
     12      Cooked: NFS,          0.000965   0    1          1        ""
     13      Baked,                0.000965   0    1          1        ""
     31      Canned: NFS,          0.000965   0    1          1        ""
     33      Canned: Baked,        0.000965   0    1          1        ""
     41      Frozen: NFS,          0.000965   0    1          1        ""
     42      Frozen: Cooked,       0.000965   0    1          1        ""
 405  15008AA,6B,  0.001     51   1          1          4   "Peas-succulent/blackeye/cowpea", ""
     12      Cooked: NFS,          0.001      51   1          1        ""
     14      Boiled,               0.001      51   1          1        ""
     32      Canned: Cooked,       0.001      51   1          1        ""
     42      Frozen: Cooked,       0.001      51   1          1        ""
 407  14023AA,1AB, 0.001     46   1          1          1   "Radishes-japanese (daiken)", ""
     12      Cooked: NFS,          0.001      46   1          1        ""
 413  15009AB,6A,  0.001     48   1          1          5   "Snowpeas", ""
     11      Uncooked,             0.001      48   1          1        ""
     12      Cooked: NFS,          0.001      48   1          1        ""
     14      Boiled,               0.001      48   1          1        ""
     15      Fried,                0.001      48   1          1        ""
     42      Frozen: Cooked,       0.001      48   1          1        ""
 416  01016JA,O,   0.00022   0    0.3        1          5   "Strawberries-juice", ""
     11      Uncooked,             0.00022    0    0.3        1        ""
     12      Cooked: NFS,          0.00022    0    0.3        1        ""
     13      Baked,                0.00022    0    0.3        1        ""
     14      Boiled,               0.00022    0    0.3        1        ""
     31      Canned: NFS,          0.00022    0    0.3        1        ""
 417  15018HA,O,   0.00046   0    1          1          2   "Sunflower-seeds", "AR x 1% CT"
     11      Uncooked,             0.00046    0    1          1        "AR x 1% CT"
     13      Baked,                0.046      0    1          1        ""
 418  14018LV,2,   0.001     35   1          1          0   "Sweet potatos-leaves", ""
 420  02008JC,10,  0.001     12   3.2        1          0   "Tangerines-juice-concentrate",
"7.35/2.3"
 423  11005DA,8,   0.003674  0    14.3       1          2   "Tomatoes-dried", ""
     12      Cooked: NFS,          0.003674   0    14.3       1        ""
     15      Fried,                0.003674   0    14.3       1        ""
 431  030090L,14,  0.0195    0    1          1          0   "Walnut oil", "AR calcd from average of
FT & %CT"
 437  24007OL,15,  0.001     53   1          1          0   "Wheat-germ oil", "wheat rough file"
 441  02002JC,10,  0.001     12   3.93       1          1   "Grapefruit-juice-concentrate",
"8.26/2.1"
     41      Frozen: NFS,          0.001      12   3.93       1        "8.26/2.1"
 442  02004JC,10,  0.001     12   5.7        1          6   "Lemons-juice-concentrate", "11.4/2"
     12      Cooked: NFS,          0.001      12   5.7        1        "11.4/2"
     13      Baked,                0.001      12   5.7        1        "11.4/2"
     14      Boiled,               0.001      12   5.7        1        "11.4/2"
     31      Canned: NFS,          0.001      12   5.7        1        "11.4/2"
     34      Canned: Boiled,       0.001      12   5.7        1        "11.4/2"
     41      Frozen: NFS,          0.001      12   5.7        1        "11.4/2"
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443  02005JC,10,  0.001     12   3         1          2   "Limes-juice-concentrate", "6/2"
    12      Cooked: NFS,           0.001      12   3          1        "6/2"
    41      Frozen: NFS,           0.001      12   3          1        "6/2"
448  02002HA,10,  0.001     5    1         1          0   "Grapefruit peel", ""
451  No Code,5A,  0.001     36   1         1          1   "Broccoli-chinese", ""
    14      Boiled,                0.001      36   1          1        ""
452  No Code,5B,  0.001     59   1         1          5   "Bok choy", ""
    11      Uncooked,              0.001      59   1          1        ""
    12      Cooked: NFS,           0.001      59   1          1        ""
    14      Boiled,                0.001      59   1          1        ""
    42      Frozen: Cooked,        0.001      59   1          1        ""
    51      Cured: NFS (smoked/p, 0.001       59   1          1        ""
480  06016GA,O,   0.001     28   1         1          1   "Plantains-green", ""
    15      Fried,                 0.001      28   1          1        ""
481  06016DA,O,   0.001     28   3.9       1          0   "Plantains-dried", ""
482  No Code,O,   0.00032   0    1         1          11  "Soybeans-protein isolate", ""
    12      Cooked: NFS,           0.00032    0    1          1        ""
    13      Baked,                 0.00032    0    1          1        ""
    14      Boiled,                0.00032    0    1          1        ""
    15      Fried,                 0.00032    0    1          1        ""
    31      Canned: NFS,           0.00032    0    1          1        ""
    32      Canned: Cooked,        0.00032    0    1          1        ""
    33      Canned: Baked,         0.00032    0    1          1        ""
    34      Canned: Boiled,        0.00032    0    1          1        ""
    41      Frozen: NFS,           0.00032    0    1          1        ""
    42      Frozen: Cooked,        0.00032    0    1          1        ""
    51      Cured: NFS (smoked/p, 0.00032     0    1          1        ""
484  No Code,O,   0.001     46   1         1          0   "Radishes-oriental", ""
940  No Code,O,   0.001     58   1         1          5   "Peanuts-hulled", ""
    12      Cooked: NFS,           0.001      58   1          1        ""
    13      Baked,                 0.001      58   1          1        ""
    14      Boiled,                0.001      58   1          1        ""
    15      Fried,                 0.001      58   1          1        ""
    41      Frozen: NFS,           0.001      58   1          1        ""
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